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SHARP 14A-30MT SERVICE MANUAL

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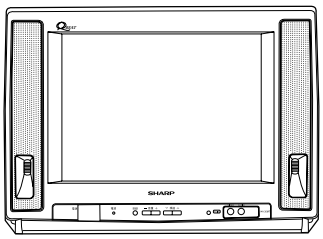
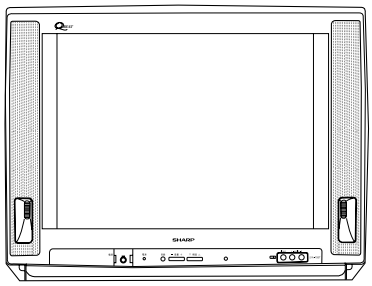
SHARP SERVICE MANUAL

SX9Q414A-30MT



14A-30MT



21A-70ST

COLOR TELEVISION

Chassis No. SN-80B(14")
Chassis No. SN-80B(21")

MODELS 14A-30MT 21A-70ST

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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ELECTRICAL SPECIFICATIONS

POWER INPUT ..... 110 V AC 60 Hz
POWER RATING
  14A-30MT ..... 59 W
  21A-70ST ..... 91 W
PICTURE SIZE
  14A-30MT ..... 580cm^2 (89,9sq inch)
  21A-70ST ..... 1,240cm^2 (192sq inch)
CONVERGENCE ..... Magnetic
SWEEP DEFLECTION ..... Magnetic
FOCUS ..... Hi-Bi-Potential Electrostatic
INTERMEDIATE FREQUENCIES
  Picture IF Carrier Frequency ..... 45.75 MHz
  Sound IF Carrier Frequency ..... 41.25 MHz
  Color Sub-Carrier Frequency ..... 42.17 MHz (Nominal)
AUDIO POWER OUTPUT RATING
  14A-30MT ..... 1.5W + 1.5W (at 10% distortion)
  21A-70ST ..... 5.0W + 5.0W (at 10% distortion)
SPEAKER
  SIZE
    14A-30MT ..... 9 x 5 cm
    21A-70ST ..... 12 x 6 cm
  VOICE COIL IMPEDANCE
    14A-30MT ..... 8 ohm at 400 Hz
    21A-70ST ..... 6 ohm at 400 Hz
ANTENNA INPUT IMPEDANCE
  VHF/UHF ..... 75 ohm Unbalanced
TUNING RANGES
  VHF-Channels ..... 2 thru 13
  UHF-Channels ..... 14 thru 69
  CATV Channels ..... 1 thru 125

Specifications are subject to change without prior notice.

IMPORTANT SERVICE SAFETY PRECAUTION

■ **Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:**

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulating material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit. The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation, if the high voltage is as specified in the "High Voltage Check" instructions.
   It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in the glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter.
   The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value –no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and;also, under certain conditions, may produce radiation in exceeding of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver.
   Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

IMPORTANT SERVICE SAFETY PRECAUTION

(Continued)

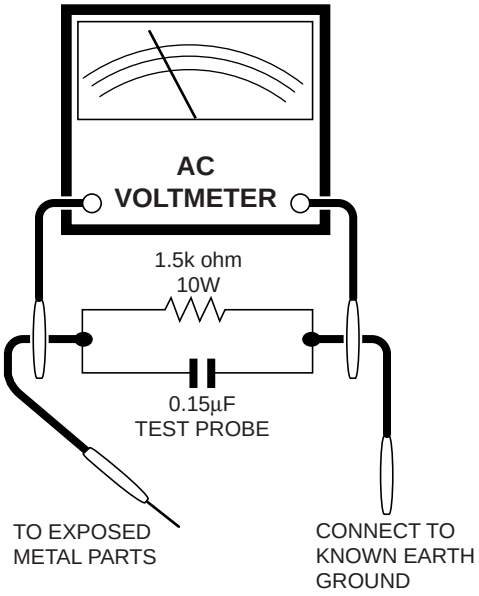
BEFORE RETURNING THE RECEIVER

(Fire & Shock Hazard)

Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 110 volt AC outlet, (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15μF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.
  AII checks must be repeated with the AC ine cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)
  Any current measured must not exceed 0.5 milliamp. Any measurements not within the limits outlined above indicate of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.
Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

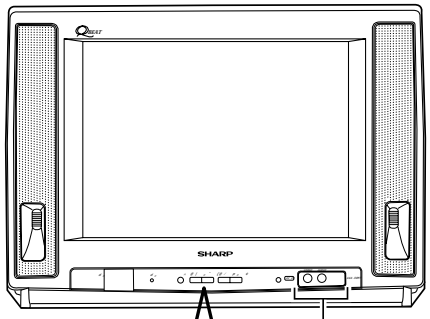
For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

LOCATION OF USER'S CONTROL

操作面板的使用方法

■ 控制鈕的位置

前端控制板



電源鈕
按下 → 接通（ＯＮ）
再次按下 → 關閉
（ＯＦＦ）

到視頻/音頻輸入

遙控器接收窗

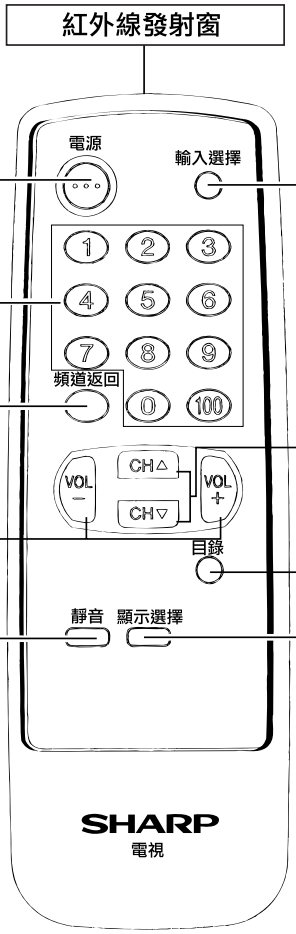
頻道 ▲ (CH UP▲)/
頻道 ▼ (CH DOWN▼)
(▲) 選擇上一個頻道。
(▼) 選擇下一個頻道。

電視音量＋(VOL＋)/
電視音量－(VOL－)
(十) 增加音量
(—) 降低音量

電源指示燈

目錄鈕
按下→入主目錄。
再次按下→退出目錄。

基本遙控器功能



紅外線發射窗

電源鈕
按下→接通（ＯＮ）。
再次按下→關閉（ＯＦＦ）。

輸入選擇鈕
按下→切換到外部視頻輸入方式。

數字鈕
按下數字鍵盤上的鈕，直接選擇頻道。

頻道返回鈕
返回到先前觀看的頻道。

頻道 ▲ (CH UP▲)/
頻道 ▼ (CH DOWN▼)
(▲) 選擇上一個頻道。
(▼) 選擇下一個頻道。
・在目錄畫面上是做為移動“⬍”標記。

電視音量＋(VOL＋)/
電視音量－(VOL－)
(十) 增加音量
(—) 降低音量
・當處於目錄畫面時，是做為改變或選擇電視機的調整項目。

目錄鈕
按下→入主目錄。
再次按下→退出目錄。

靜音鈕
按下→靜音。
再次按下→恢復先前的音量。

顯示選擇鈕
按下→顯示所接收到的頻道，持續４秒鐘。
再次按下→清除顯示。

INSTALLATION AND SERVICE INSTRUCTIONS

Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdrivers or TV alignment tools.
(2) Before performing adjustments, the TV set must be on at least 15 minutes.

CIRCUIT PROTECTION

The receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

X-RADIATION PROTECTOR CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, B+ system, test the X-Radiation protection circuit to ascertain proper operation as follows:

1. Apply 110V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Receive a good local channel.
4. Connect a digital voltmeter to TP653 and make sure that the voltmeter reads 20.6 ±1.5V.
5. Apply external 26.8V DC at TP653 by using an external DC supply, TV must be shut off.
6. To reset the protector, unplug the AC cord and make a short circuit between TP651 and TP652. Now make sure that normal picture appears on the screen.
7. If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 110V AC line voltage, with a strong air signal or a properly tuned in test signal.
3. Enter the service mode and select the service adjustment "S19" and Bus data "01" (Y-mute on).
4. The voltage should be approximately, 24.0kV (14A-30MT) / 27.0kV (21A-70ST) (at zero beam).
   If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test, make Y-mute off to the normal mode.

For adjustments of this model, the bus data is converted to various analog signals by the D/A converter circuit.

Note: There are still a few analog adjustments in this series such as focus and master screen voltage. Follow the steps below whenever the service adjustment is required. See "Table-B" to determine, if service adjustments are required.

1. Service mode

Before putting unit into the service mode, check that customer adjustments are in the normal mode. Use the reset function in the video adjustment menu to ensure customer controls are in their proper (reset) position.

2. Service number selection

Once in the service mode, press the Ch-up or Ch-down button on the remote controller or at the set. The service adjustment number will vary in increments of one, from "S01" to "M05". Select the item you wish to adjust.

3. Data number selection

Press the Vol-up or down button to adjust the data number.

To enter the service mode and exit service mode.

While pressing the Vol-up and Ch-up buttons at the sametime, plug the AC cord into a wall socket.
Now the TV set is switched on and enters the service mode.
To exit the service mode, turn the television off by pressing the power button.

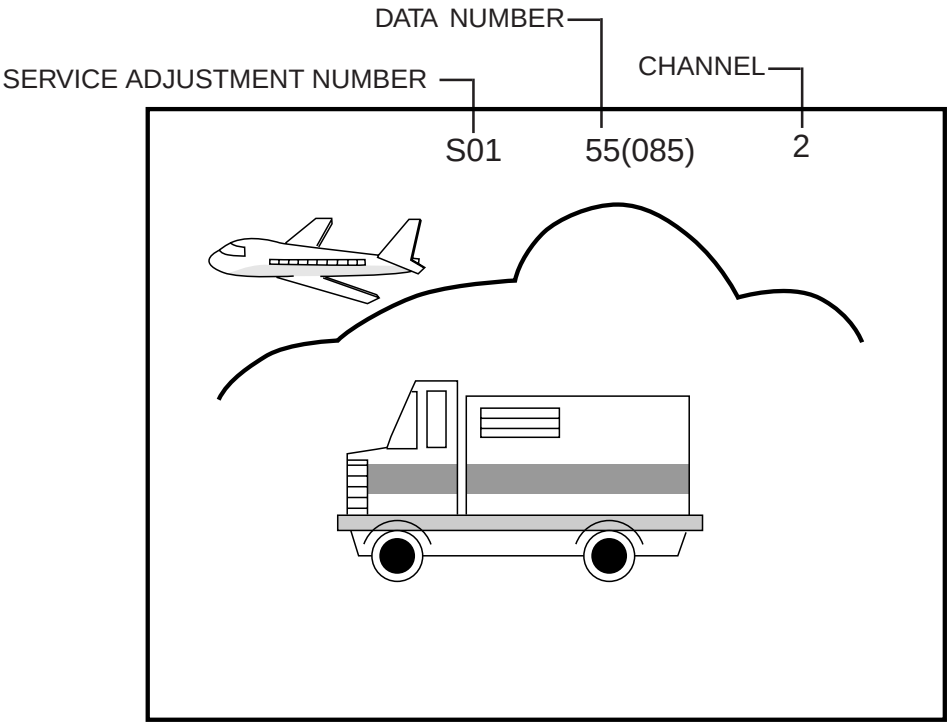


Figure A.

SERVICE NUMBER	ADJUSTMENT ITEM	DATA		ADJUSTMENT CONTENTS
		INITIAL VALUE	RANGE	
S01	PICTURE	55	00-7F	
S02	TINT	46	00-7F	
S03	COLOR	32	00-7F	
S04	BRIGHTNESS	40	00-7F	
S05	SHARPNESS	28	00-3F	Must be set to "24"
S06	VERTICAL PHASE	00	00-07	Must be set to "00" ~ "03"
S07	HORIZONTAL PHASE	12	00-1F	
S08	RF-AGC	23	00-3F	
S09	VERTICAL AMP	20	00-3F	
S10	VCO	2C	00-7F	
S11	R CUT-OFF	00	00-FF	
S12	G CUT -OFF	00	00-FF	
S13	B CUT-OFF	00	00-FF	
S14	G GAIN	7F	00-FF	
S15	B GAIN	7F	00-FF	
S16	TRAP(3.58MHz)	00	00 or 01	Must be set to "00"
S17	BALANCE	20	00-3F	Must be set to "20"
S19	Y-MUTE	00	00,01,03	"00" = Normal, "01" = No-Y, "03" = No Vertical
S20	ENERGY SAVE OFFSET	20	00-3F	Must be set to "19"
S21	D.D.E. OFFSET	03	00-1F	Must be set to "03"
S22	LANGUAGE SELECT	00	00-01	Must be set to "01"
S23	LANGUAGE MENU	01	00-01	Must be set to "01"
S24	TUNER OPTION	00	00-01	Must be set to "00"
M01	MTS LEVEL	0A	00-F	
M02	STEREO-VCO	20	00-3F	
M03	FILTER	1C	00-3F	21A-70ST only
M04	LOW SEPARATION	20	00-3F	
M05	HIGH SEPARATION	1B	00-3F	
OP.	OPTION	30	00-FF	Must be set to "02" for 14A-30MT Must be set to "06" for 21A-70ST

Table - A

Holding down both the CH-up/down buttons on the TV set at service mode for more than 2 seconds will automatically write the above initial values into IC2101.

PART REPLACED	ADJUSTMENT		NOTES
	NECESSARY	UNNECESSARY	
IC2001		X	Data is stored in IC2101.
IC201	X		The adjustment is needed to compensate for characteristics of parts including IC201.
IC2101	X		Holding down both the CH-up/down buttons on the TV set in the service mode for more than 2 seconds will automatically write the above initial values into IC2101.
CRT	X		Adjust items related to picture tube only.

Table - B

■ SERVICE ADJUSTMENT

VCO Adjustment

1. Connect a digital voltmeter between pin (44) of IC201 and ground.
2. Receive a good local channel.
3. Enter the service mode and select the service adjustment "S10".
4. Adjust the data so that digital voltmeter reads 2.2V.
5. Adjustment is completed, remove the voltmeter, return to "normal" mode.

RF AGC Adjustment

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S08".
3. Set the data value to point where no noise or beat appears.
4. Select another channel to confirm that no noise or beat appears.
   Note 1 : You will have to come out of the service mode to select another channel.
   Note 2 : Setting the data to "00" will produce a black raster.

Screen Adjustment

1. Connect a digital voltmeter between TP852 and TP853 on the CRT Unit.
   Note: These test points may not be provided.
   Then connect the voltmeter to both ends of R852 located near Q852 on the foil side.
2. Receive a good local channel.
3. Enter the service mode and select the service adjustment "S03" and set the data value to "00" to set the color level to minimum. (Record original data code under adjustment "S03" before changing) You may skip this step, if you selected a B/W picture or monoscope pattern.
4. Select the service adjustment "S19" and adjust the data value to "01", this turn off the luminance signal (Y-mute).
5. Select the service adjustment "S04" and adjust data value to obtain 0.17 volts on the digital voltmeter.
6. Adjust the master screen control until the raster darkens to the point where raster is barely seen.
7. Adjust the service adjustments "S11" red, "S12" green and "S13" blue to obtain a good grey scale with normal whites at low brightness level.
8. Select the service adjustment "S19" and reset data to "00". Select the service adjustment "S03" and reset data to obtain normal color level.
9. Remove digital voltmeter, and reset the master screen control to obtain normal brightness range.

White Balance Adjustment

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S03" and set to "00" (minimum color)(Record original data code under adjustment "S03" before changing). "S03" does not have to be adjusted, if you selected a B/W picture or monoscope pattern.
3. Alternately adjust the service adjustment data of "S14" and "S15" until a good grey scale with normal whites is obtained.
4. Select the service adjustment "S03" and adjust data to obtain normal color level.

Sub-Picture Adjustment

1. Receive a good local channel.
2. Make sure the customer picture control is set to maximum.
3. Enter the service mode and select the service adjustment "S01".
4. Adjust the data value to achieve normal contrast range.

Sub-Tint Adjustment

1. Receive a good local channel.
2. Set customer tint control to center of it's range.
3. Enter the service mode and select the service adjustment "S02".
4. Adjust "S02" data value to obtain normal flesh tones.

Sub-Color Adjustment

1. Receive a good local channel.
2. Make sure the customer color control is set to center position .
3. Enter the service mode and select the service adjustment "S03".
4. Adjust "S03" data value to obtain normal color level.

Sub-Brightness Adjustment

1. Receive a good local channel.
2. Make sure the customer brightness control is set to center position.
3. Enter the service mode and select the service adjustment "S04".
4. Adjust "S04" data value to obtain normal brightness level.

Vertical-Size Adjustment

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S09".
3. While observing the top and bottom of the screen, adjust "S09" data value to proper vertical size.

Vertical Phase Adjustment

1. Enter the service mode and select the service adjustment "S06".
2. Adjust data value to "00" ~ "03".
   Note: This must be set "00" ~ "03" when changed data retrace line will appear.

Horizontal Position Adjustment

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S07".
3. Adjust "S07" data value so that picture is centered.

3.58MHz Trap Adjustment

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S16".
3. This is a two position adjustment, "00" is ON, "01" is OFF.
4. Adjust data value to "00" for normal viewing.

Sharpness, Audio Balance, Energy Save Offset, DDE Offset, Tuner Setup Option Adjustments, Language select and Language menu.

1. Receive a good local channel.
2. Enter the service mode and select the service adjustments "S05" for sharpness, "S17" for balance, "S20" for energy save offset, "S21" for DDE offset, "S22" for OSD setup, "S23" for tuner and "OP" for option.

- **Sharpness Adjustment**

3. Adjust data value to "24" (center of data range) for sharpness adjustment.

- **Audio Balance Adjustment**

4. Adjust data value to "20" (center of data range) for Audio balance adjustment.

- **Energy Save Offset Adjustment**

5. Adjust data value to "19".

- **DDE Offset Adjustment**

6. Adjust data value to "03".

- **Tuner Setup Adjustment**

7. Adjust data value to "00".

- **Option Adjustment**

8. Adjust data value to "02" for 14A-30MT and "06" for 21A-70ST.

- **Language select**

9. Adjust data value to "01".

- **Language menu**

10. Adjust data value to "01".

■ MTS ADJUSTMENT (Only for 21A-70ST)

MTS Level Adjustment

1. Feed the following monaural signal to pin (14) of IC3001.
   Monaural signal : 400Hz, 100% modulation.
2. Connect the rms voltmeter to pin (39) of IC3001.
3. Enter the service mode and select the service adjustment "M01".
4. Adjust the data so that the rms voltmeter reads.
   490 ±25mVrms.

MTS VCO Adjustment

1. Keep the unit in no-signal state.
2. Connect the frequency counter to pin (39) of IC3001.
3. Connect a capacitor (100µF, 50V) in between positive(+) side of C3005 and ground.
4. Enter the service mode and select the service adjustment "M02"
5. Adjust the data so that the frequency counter reads.
   62.94 ±0.75kHz.

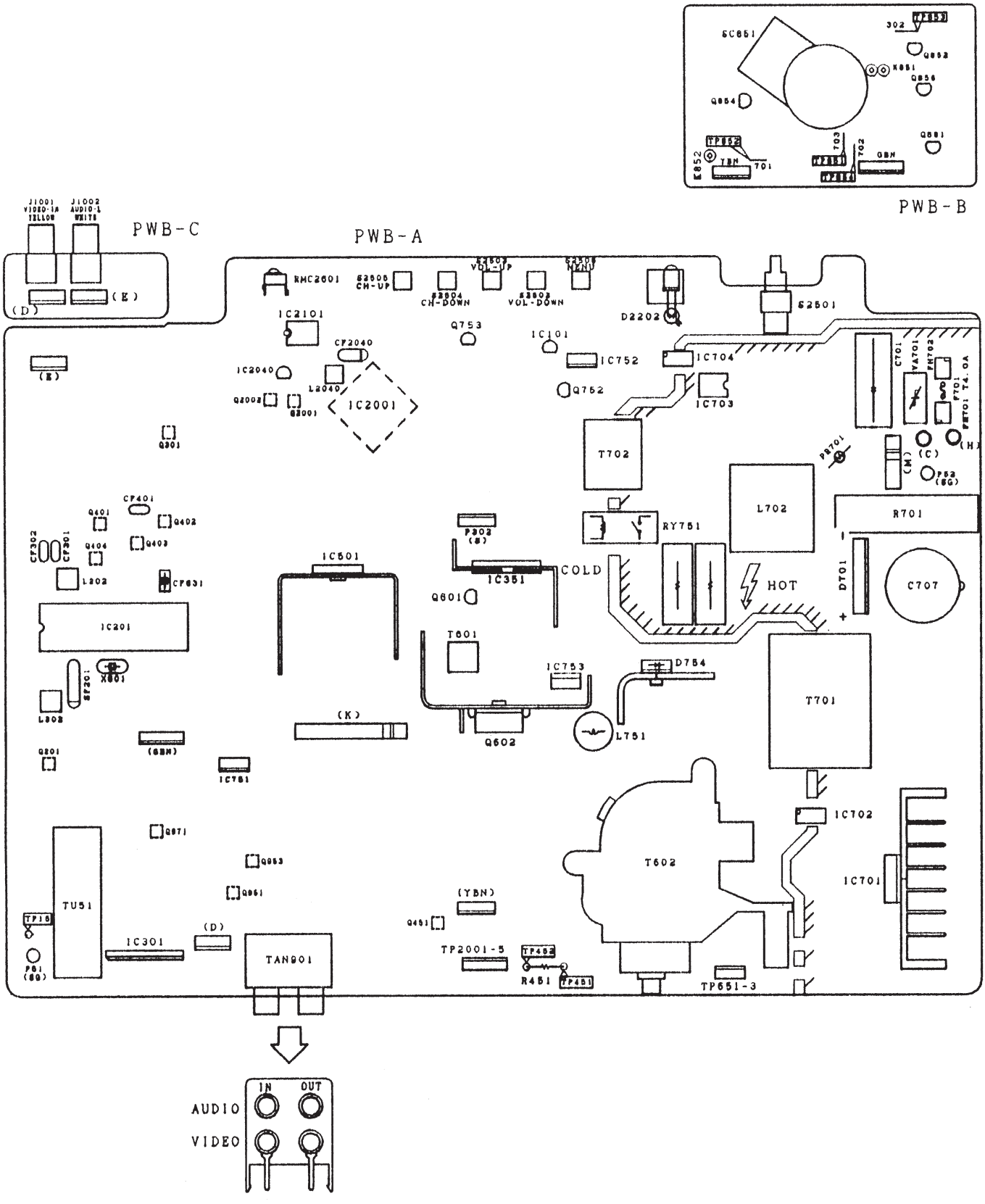
Filter Adjustment

1. Feed the following stereo pilot signal to pin (14) of IC3001 .
   Stereo pilot signal: 9.4kHz, 1.0Vrms.
2. Enter the service mode and select the service adjustment "M03".
3. Adjust the data at the point where "OK" appears on the screen. The "OK" represents the approximate center of the adjustable range of the data.

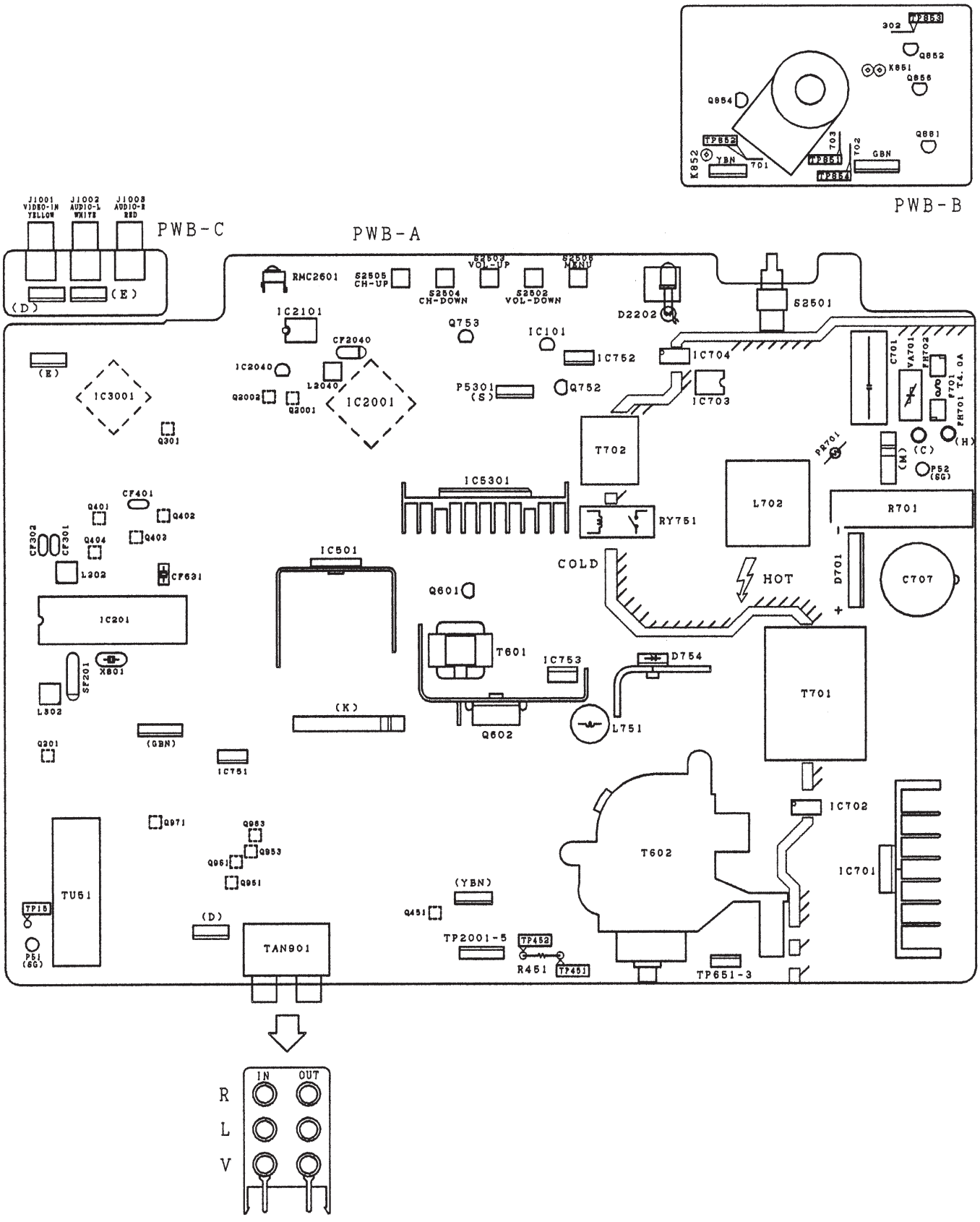
Separation Adjustment

1. Connect the rms voltmeter to pin (39) of IC3001.
2. Receive the following composite stereo signal 1.
   Composite stereo signal: 30% modulation, left channel only, noise reduction on, 300Hz
3. Enter the service mode and select the service adjustment "M04".
4. Adjust the data until the AC voltage reading of the rms voltmeter is minimum.
5. Receive the following composite stereo signal 2.
   Stereo signal: 30% modulation, left channel only, noise reduction on, 3kHz
6. Enter the service mode and select the service adjustment "M05".
7. Adjust the data until the AC voltage reading of the rms voltmeter is minimum.
8. Take the above steps 1 thru 7 again for fine adjustment.

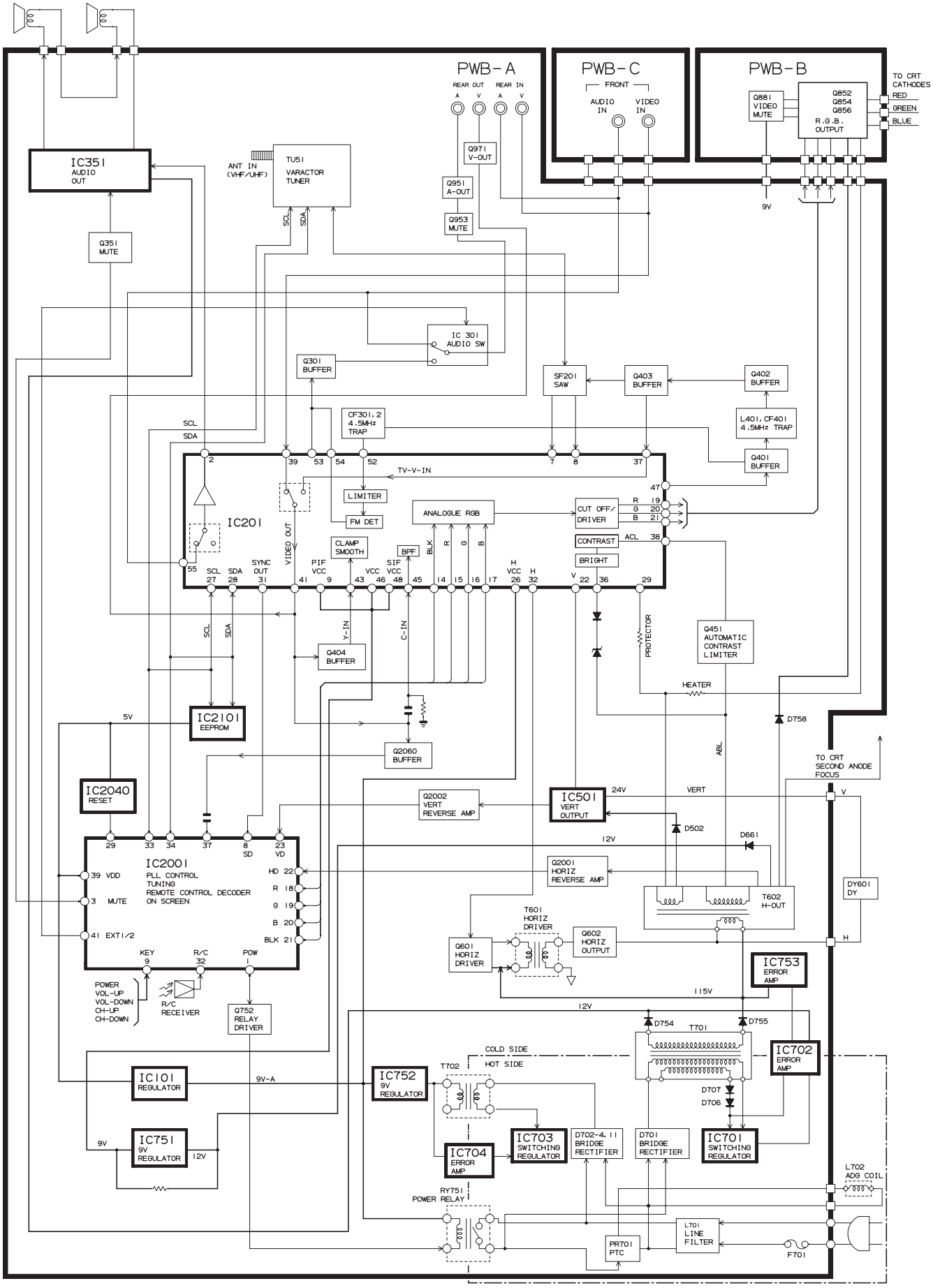
MODEL 14A-30MT CHASSIS LAYOUT



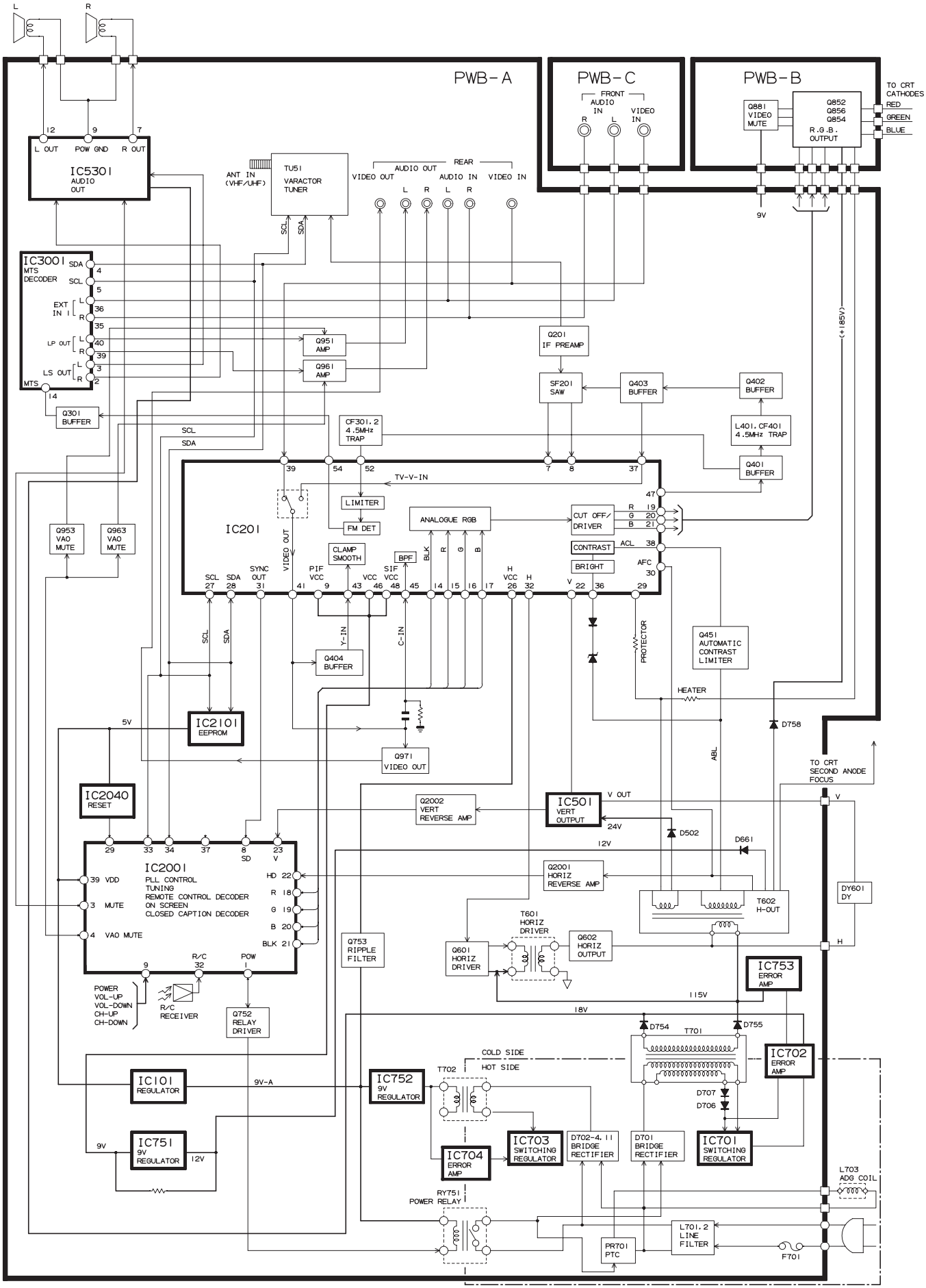
MODEL 21A-70ST CHASSIS LAYOUT



MODEL 14A-30MT BLOCK DIAGRAM



MODEL 21A-70ST BLOCK DIAGRAM



DESCRIPTION OF SCHEMATIC DIAGRAM

NOTES:

1. *The unit of resistance "ohm" is omitted. (K=kΩ=1000Ω, M=MΩ)*
2. *All resistors are 1/16 watt, unless otherwise noted.*
3. *All capacitors are μ F, unless otherwise noted. (P=pF=μμF)*
4. *(G) indicates ±2% tolerance may be used.*
5. *⏚ indicates line isolated ground.*
6. *⏚ indicates hot ground.*

VOLTAGE MEASUREMENT CONDITIONS:

1. *All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 110V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000μ V B & W or Color signal.*

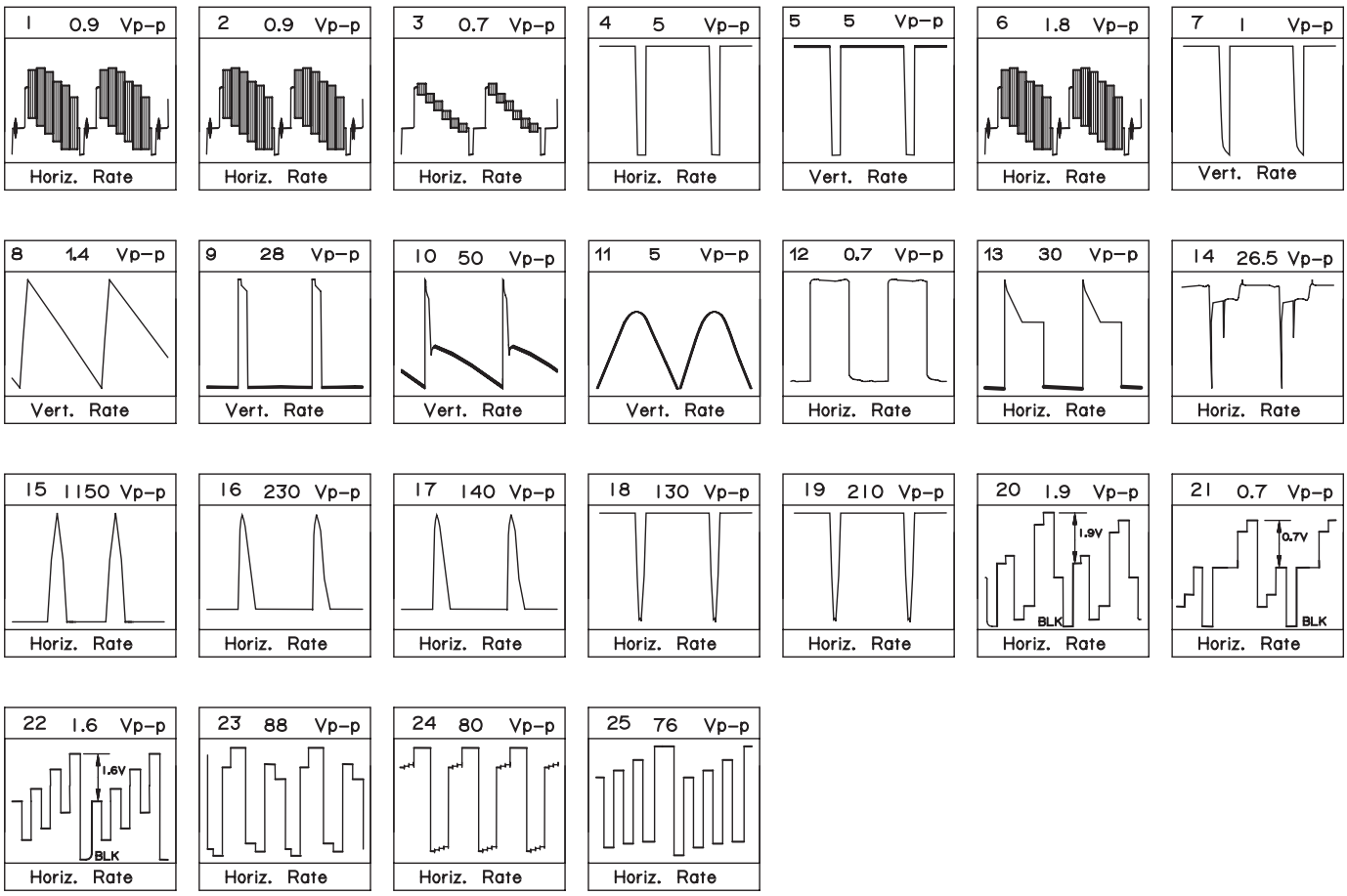
WAVEFORM MEASUREMENT CONDITIONS:

1. *Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. *indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)*

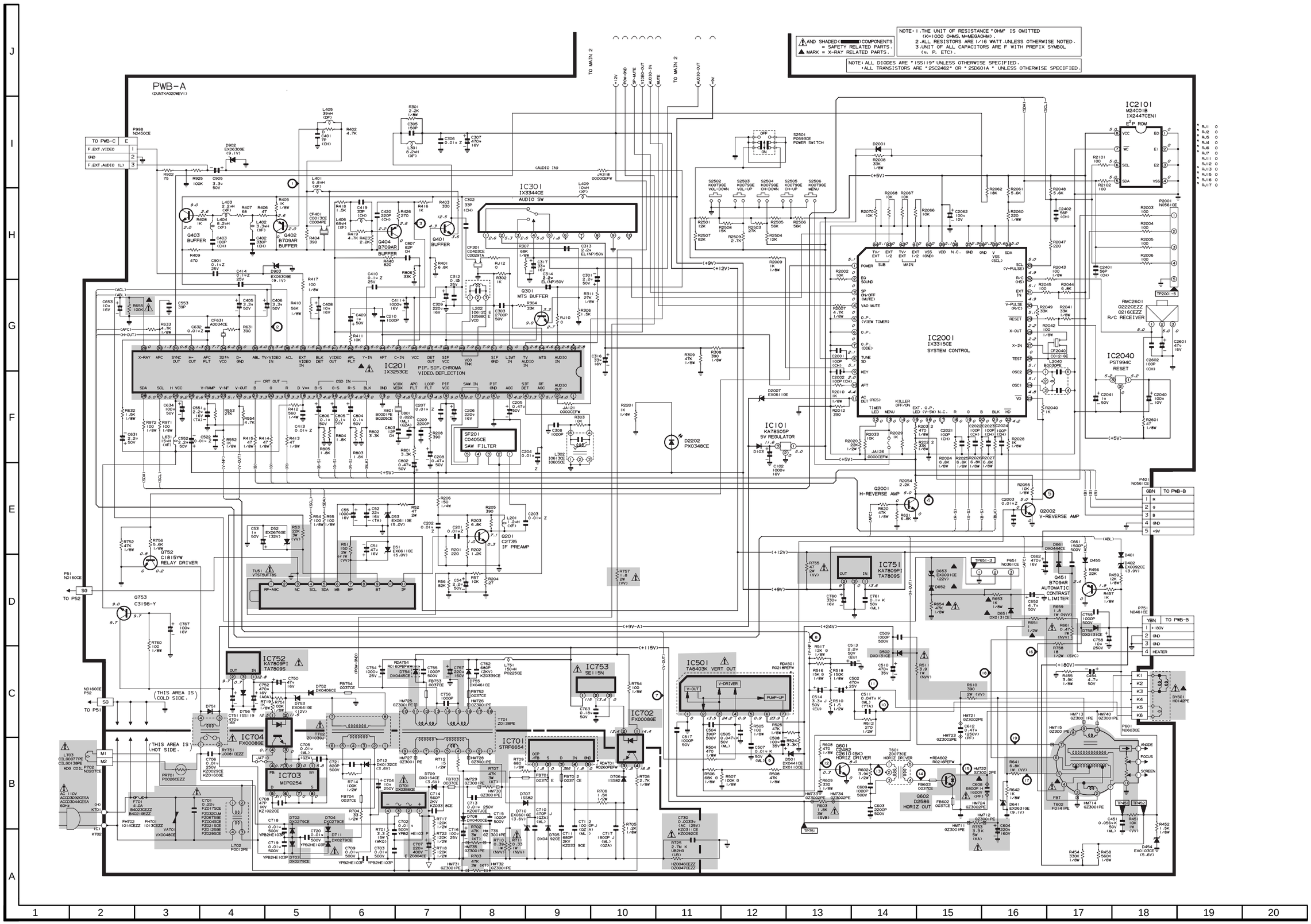
⚠ *AND SHADED ( ) COMPONENTS = SAFETY RELATED PARTS.*
▲ *MARK= X-RAY RELATED PARTS.*

This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

WAVEFORMS



MODEL 14A-30MT SCHEMATIC DIAGRAM: MAIN-1 Unit


PWB-A
(DUNTKA020WEV1)
TO MAIN 2
TO MAIN 2
(AUDIO IN)
IC301
IX3344CE
AUDIO SW
IC201
IX3253CE
PIF, SIF, CHROMA
VIDEO DEFLECTION
IC2001
IX3315CE
SYSTEM CONTROL
IC2101
M24C01B
IX2447CEN1
E²P ROM
IC2040
PST994C
RESET
RMC2601
0222CEZZ
0216CEZZ
R/C RECEIVER
IC101
KA78S05P
5V REGULATOR
IC751
KA7809PI
TA7809S
IC752
KA7809PI
TA7809S
IC753
SE115N
IC704
FX00086E
IC703
MIP0254
IC701
STRF6654
IC702
FX00089E
IC501
TA8403K VERT. OUT
Q2001
H-REVERSE AMP
Q2002
V-REVERSE AMP
Q602
D2586
HORIZ OUT
Q601
C2482
C2610 (BK)
HORIZ DRIVER
Q451
B709AR
AUTOMATIC
CONTRAST
LIMITER
Q752
C1815YW
RELAY DRIVER
Q753
C3198-Y
Q401
BUFFER
Q402
B709AR
BUFFER
Q403
BUFFER
Q404
B709AR
BUFFER
Q301
MTS BUFFER
Q201
C2735
IF PREAMP
S2501
P0593CE
POWER SWITCH
S2502 K00790E VOL-DOWN
S2503 K00790E VOL-UP
S2504 K00790E CH-DOWN
S2505 K00790E CH-UP
S2506 K00790E MENU
SF201
C0405CE
SAW FILTER
TU51
VTS75UF78S
D2001
D2007
D2202
PX0348CE
D902
EX0630E
(9.1V)
D903
EX0630E
(9.1V)
D751
D752
DX0406CE
D753
EX0641E
(12V)
D754
DX0445CE
D755
DX0461CE
D756
1SS119
D253
EX0611E
(5.0V)
D51
EX0611E
(5.0V)
D52
EX0676E
(32V)
D2501
D2502
D2503
D2504
D2505
D2506
D2507
D2508
D2509
D2510
D2511
D2512
D2513
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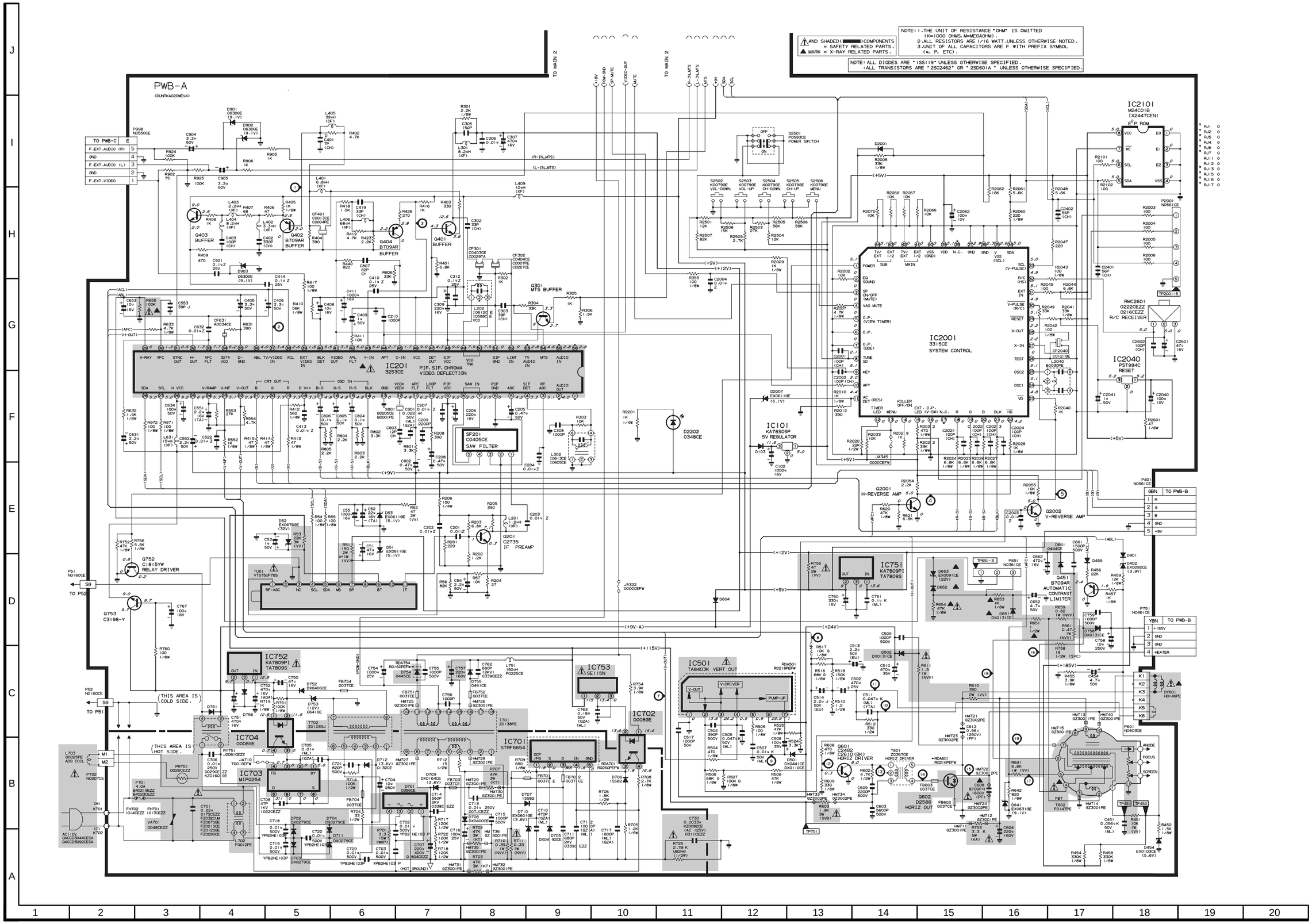
D2539
D2540

MODEL 21A-70ST SCHEMATIC DIAGRAM: MAIN-1 Unit



MODEL 14A-30MT SCHEMATIC DIAGRAM: MAIN-2 Unit

NOTE: 1.THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM).
2.ALL RESISTORS ARE 1/16 WATT.UNLESS OTHERWISE NOTED.
3.UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL (u, P, ETC).

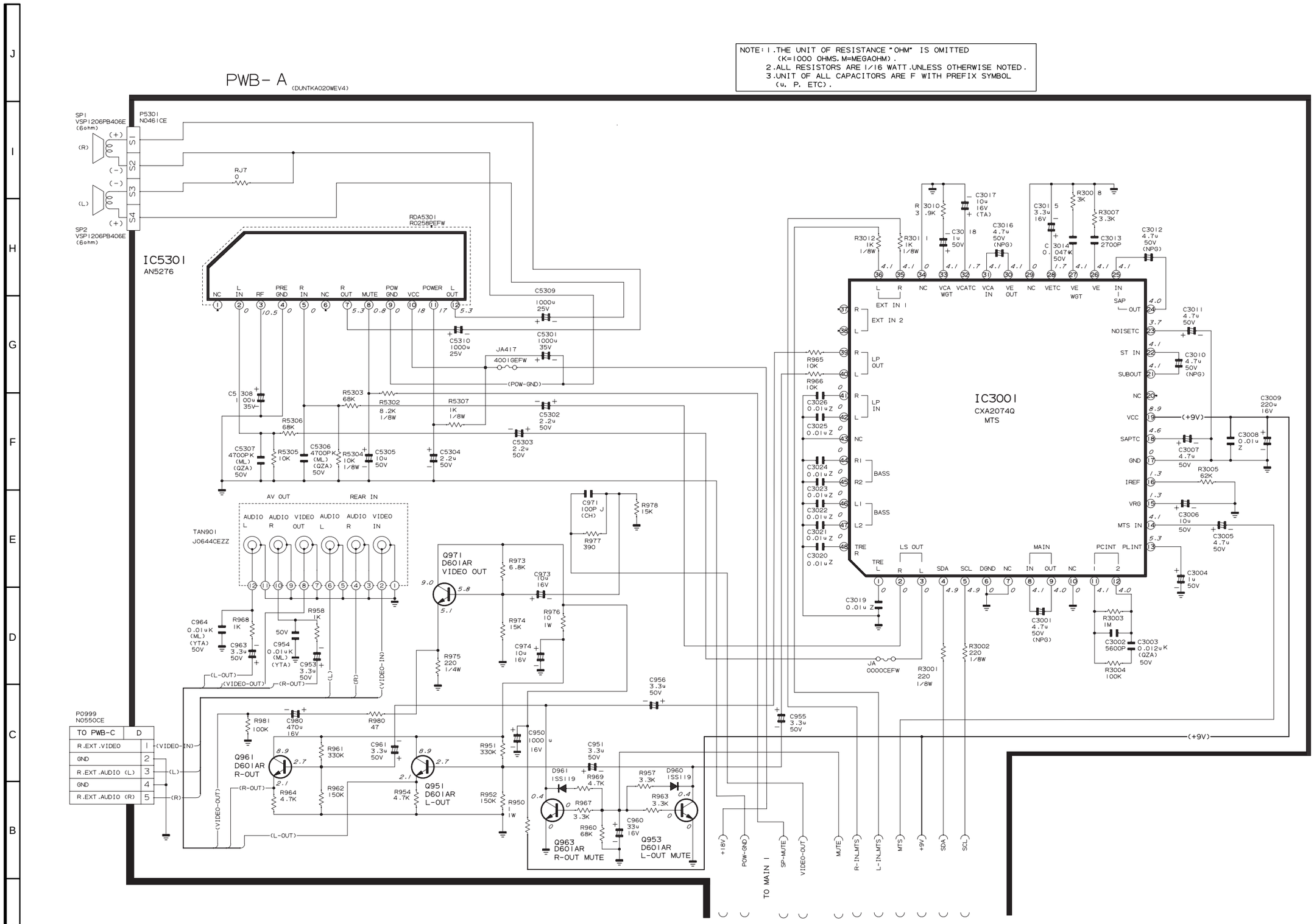
PWB-A
(DUNTKA020WEV1)

SP1 VSP9050PB108A (8ohm)
SP2 VSP9050PB108A (8ohm)
P302 N0461CE
RJ7 0
IC351 TDA7056A AUDIO OUT
JA 0000CEFW
C355 0.1u 50V (ML)
R352 4.7 1/8W
C354 10u 16V
C352 1800P 50V
C353 1000u 16V
Q351 C2462-C MUTE
R355 100 1/8W
C2004 0.01u
C5301 1000u 35V
RJ11 0
R351 15K 1/8W
R5301 QJUM 0 ohm
C351 0.082u K 50V (ML)
C971 100P J (CH)
R977 390
R978 15K
TAN901 H0011AJZZ
AV OUT
REAR IN
AUDIO OUT
VIDEO OUT
AUDIO IN
VIDEO IN
C964 0.01u K 50V (ML) (YTA)
R968 100
C963 3.3u 50V
Q971 D601AR VIDEO OUT
R973 6.8K
C973 10u 16V
R974 15K
R976 10 1W
C974 10u 16V
R975 220 1/4W
(AUDIO-OUT)
(VIDEO-OUT)
(L)
(VIDEO-IN)
JA 0000CEFW
P999 N0450CE
TO PWB-C D
R.EXT.VIDEO 1 (VIDEO-IN)
GND 2
R.EXT.AUDIO (L) 3 (L)
R981 100K
C980 470u 16V
R980 47
C950 1000u 16V
R951 150K
C951 3.3u 50V
Q951 D601AR AUDIO-OUT
R954 4.7K
R952 68K
R950 1 1W
R957 3.3K
D960 1SS119
R963 3.3K
C960 33u 16V
R960 68K
Q953 D601AR L-VA0 MUTE
JA 0000CEFW
C955 3.3u 50V (AOA)
R953 3.9K 1/8W
+12V
POW-GND
SP-MUTE
VIDEO-OUT
AUDIO-IN
MUTE
AUDIO-OUT
+9V
TO MAIN 1

MODEL 21A-70ST SCHEMATIC DIAGRAM: MAIN-2 Unit

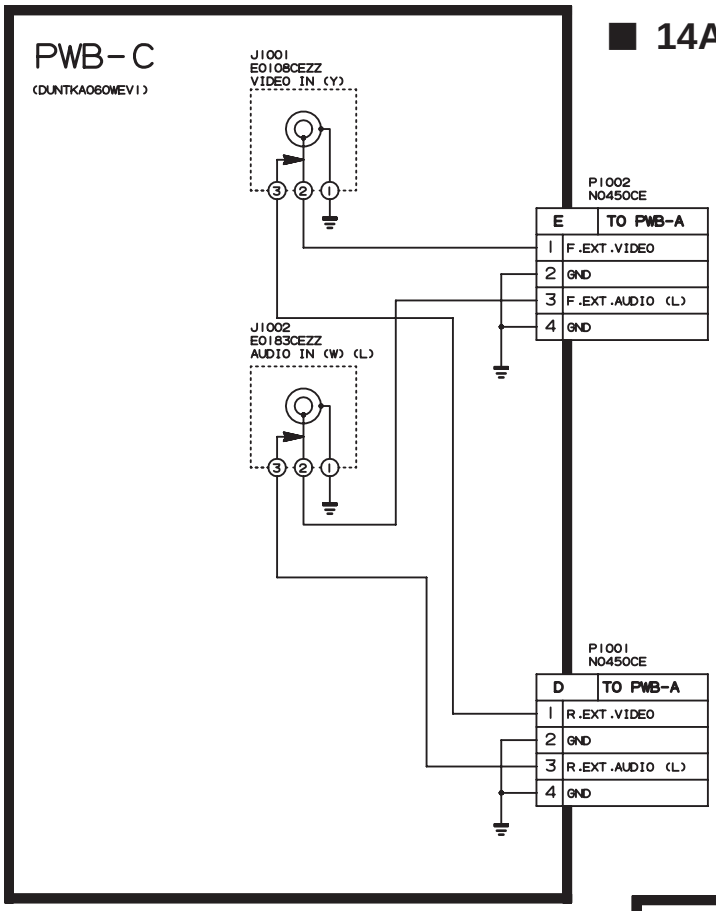
NOTE: 1.THE UNIT OF RESISTANCE "OHM" IS OMITTED
(K=1000 OHMS, M=MEGAOHM).
2.ALL RESISTORS ARE 1/16 WATT.UNLESS OTHERWISE NOTED.
3.UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL
(u, P, ETC).

PWB- A (DUNTKA020WEV4)

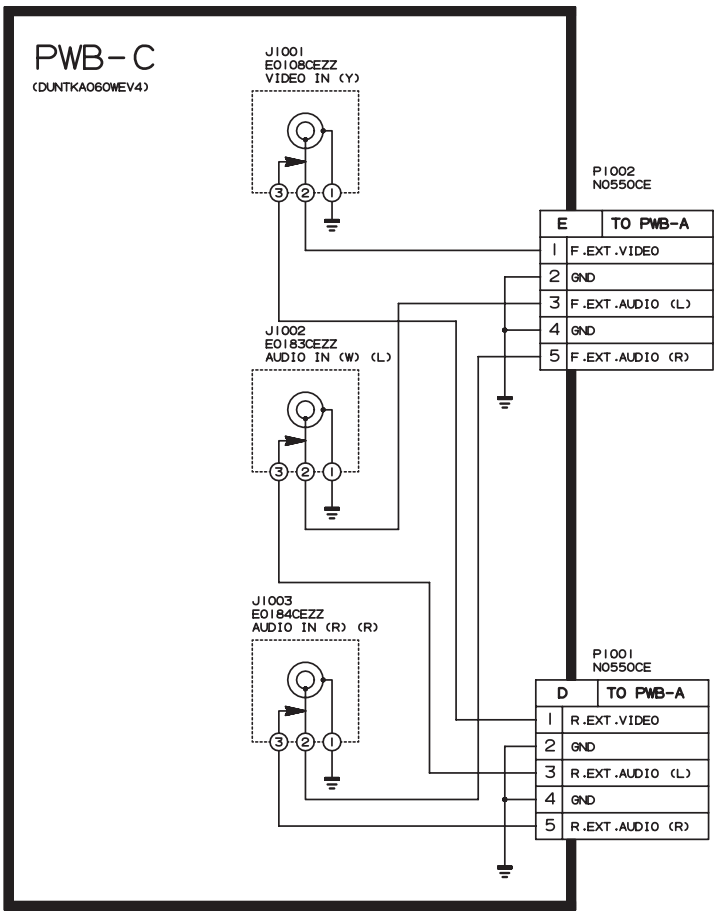


SCHEMATIC DIAGRAM: FRONT AV Unit

■ 14A-30MT

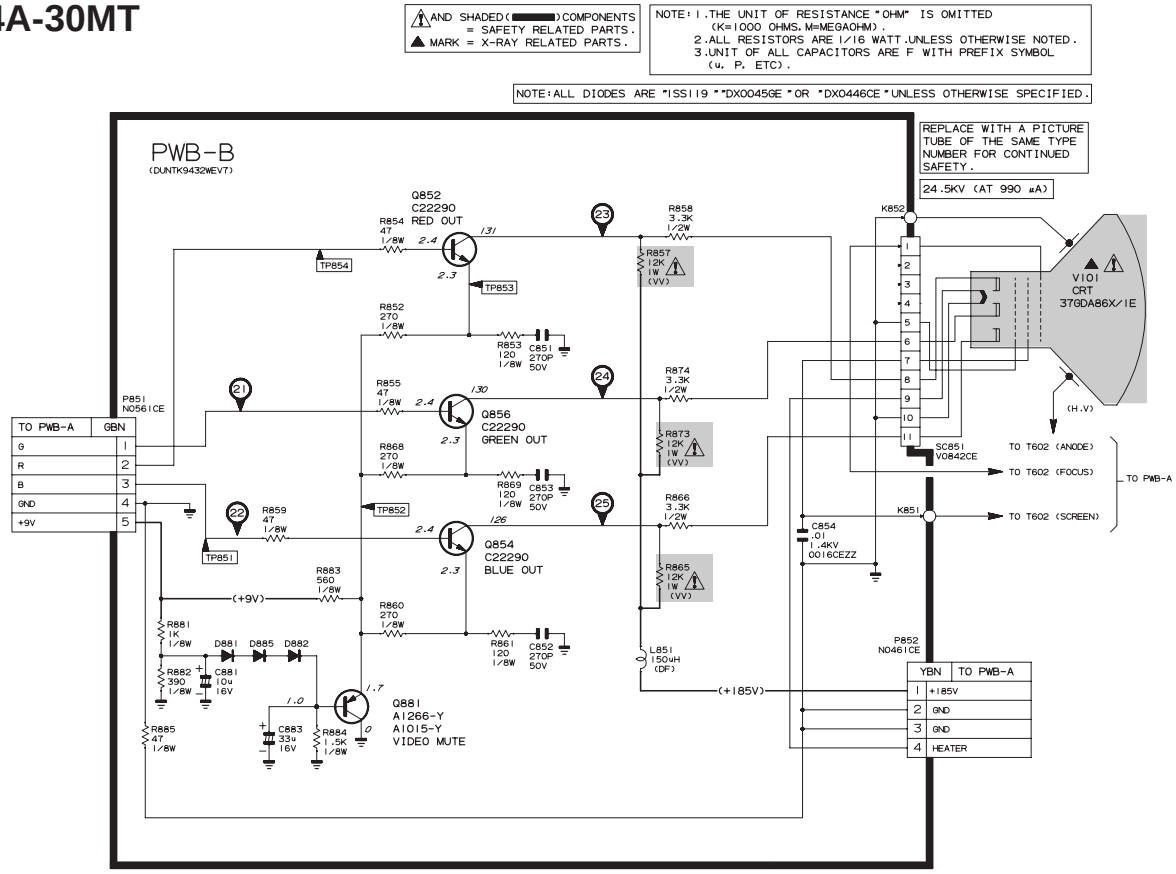


■ 21A-70ST

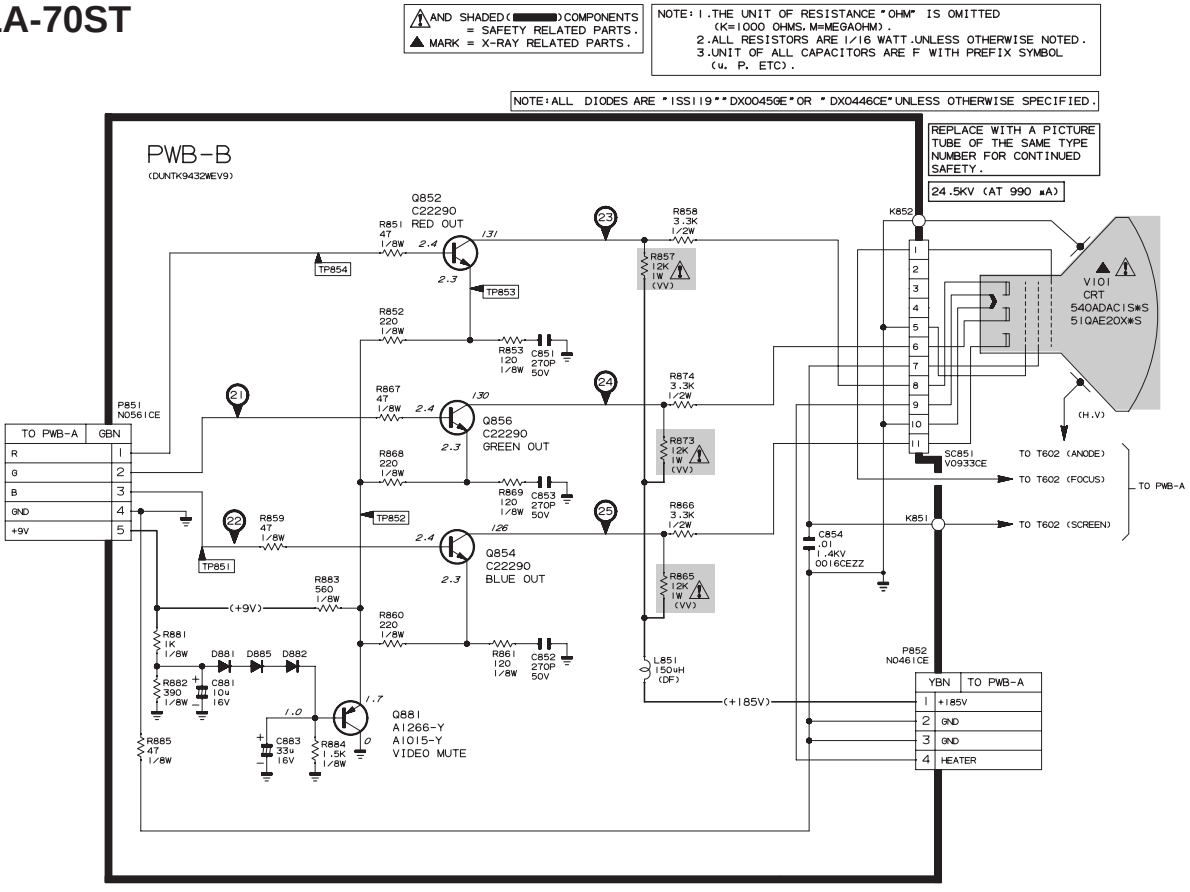


SCHEMATIC DIAGRAM: CRT Unit

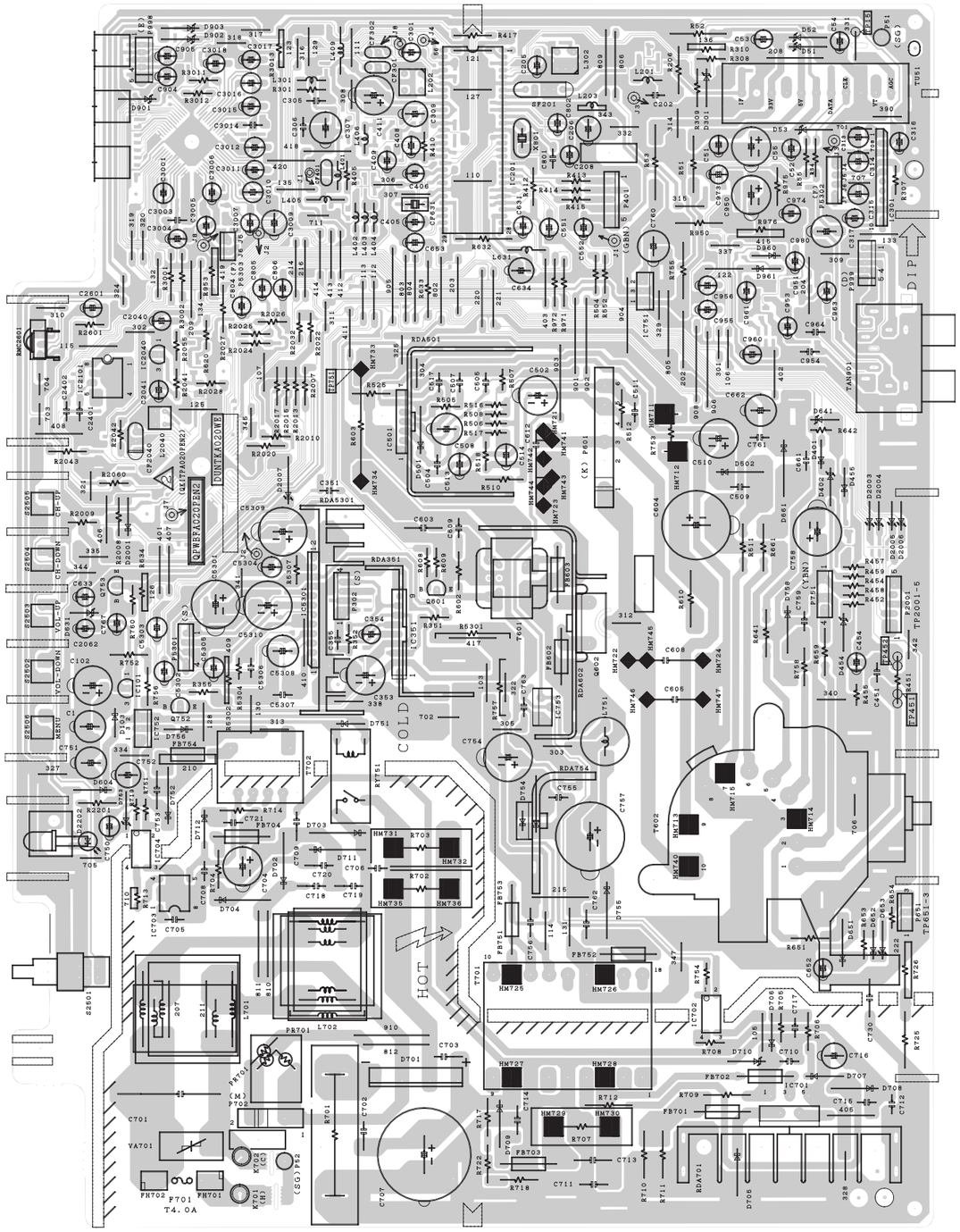
■ 14A-30MT



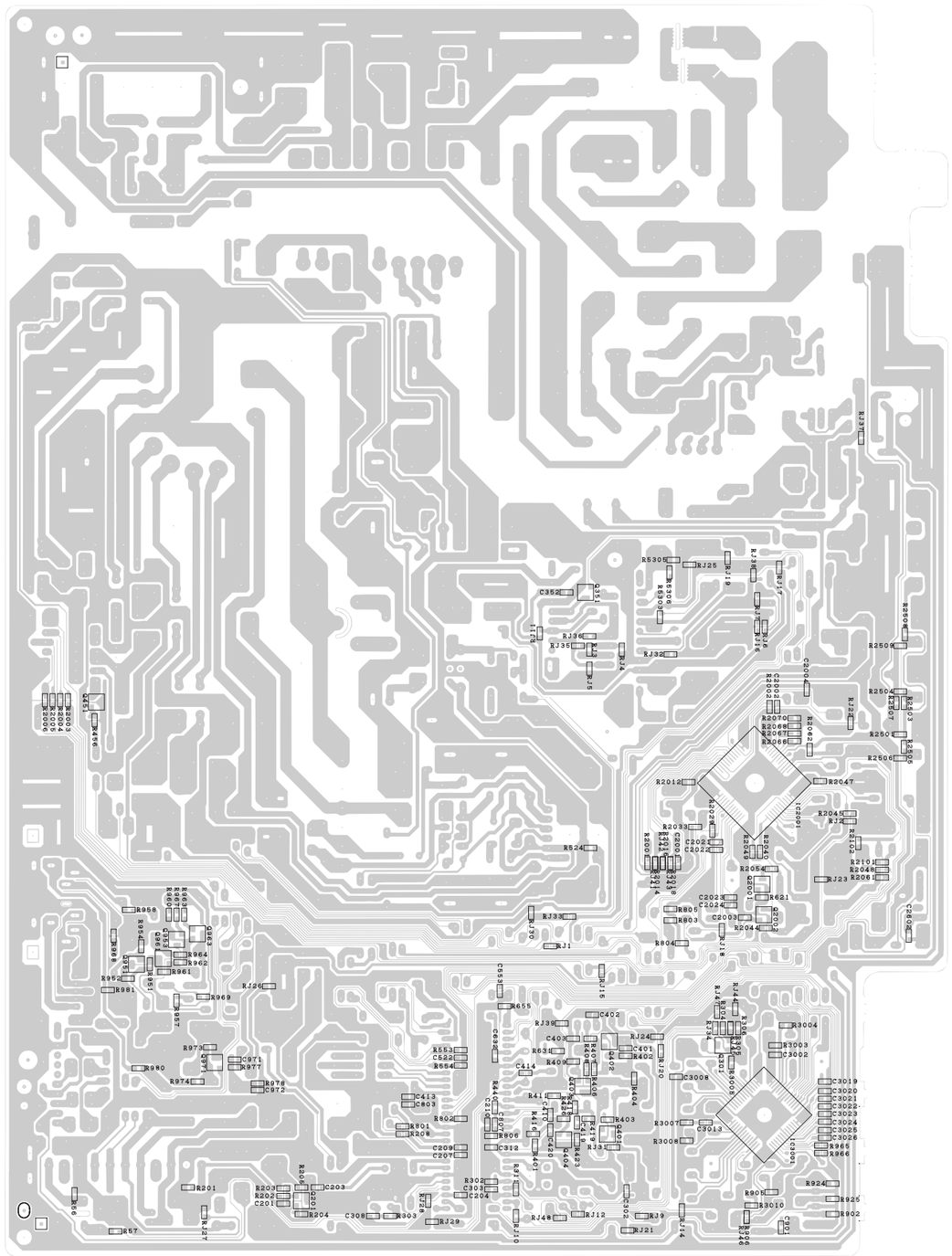
■ 21A-70ST



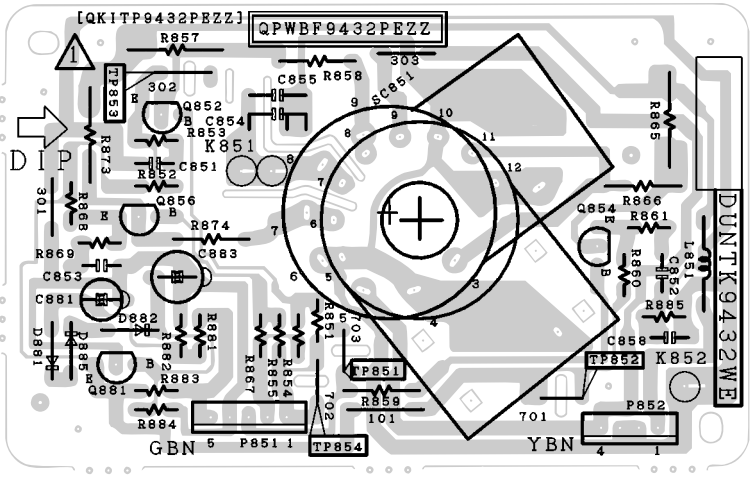
PRINTED WIRING BOARD ASSEMBLIES



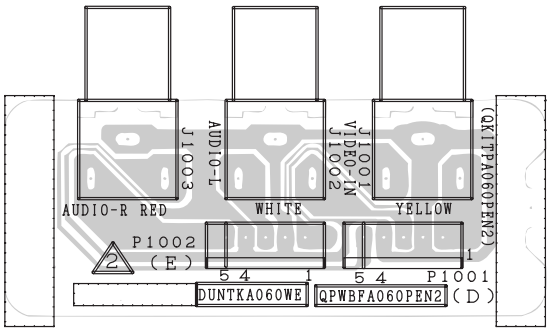
PWB-A: MAIN Unit (Wiring Side)



PWB-A: MAIN Unit (Chip Parts Side)



PWB-B: CRT Unit (Wiring Side)



PWB-C: FRONT AV Unit (Wiring Side)

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual; electrical components having such features are identified by ⚠ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which dose no have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

★MARK : SPARE PARTS-DELIVERY SECTION

▲MARK : X- RAY RELATED PARTS

Ref. No.	Part No.	★	Description	Code

PICTURE TUBE

14A-30MT

▲⚠	V101	VB37GDA86X/1E	J	Picture Tube	CB
⚠	L703	RCiLG0077PEZZ	R	Degaussing Coil	AK
		or			
		RCiLG0138PEZZ			
▲⚠	DY601	RCiLH0149PEZZ	R	Deflection Yoke	BA
		PMAGF3041CEZZ	J	Magnet	AG
		MSPRT0001PEFJ	R	Spring	AC
		QEARC1433PEZZ	R	Ground-Part	AF

21A-70ST

▲⚠	V101	VB51QAE020X*S	J	Picture Tube	CE
		or			
		VB540ADAC1S*S			
⚠	L703	RCiLG0025PEZZ	R	Degaussing Coil	AW
▲⚠	DY601	RCiLH0146PEZZ	R	Deflection Yoke	BF
		QEARC2119PEZZ	R	Ground Part	AG
		PMAGF3003CEZZ	J	Magnet	AK

PRINTED WIRING BOARD ASSEMBLIES
(NOT REPLACEMENT ITEM)

14A-30MT

PWB-A	DUNTKA020WEV1	-	Main Unit	-
PWB-B	DUNTK9432WEV7	-	CRT Unit	-
PWB-C	DUNTKA060WEV1	-	Front AV Unit	-

21A-70ST

PWB-A	DUNTKA020WEV4	-	Main Unit	-
PWB-B	DUNTK9432WEV9	-	CRT Unit	-
PWB-C	DUNTKA060WEV4	-	Front AV Unit	-

Ref. No.	Part No.	★	Description	Code

PWB-A: DUNTKA020WEV1 (14A-30MT)
PWB-A: DUNTKA020WEV4 (21A-70ST)
MAIN Unit

TUNER

NOTE : THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.

⚠	TU51	VTUVTST5UF78S	J	Tuner	BD

INTEGRATED CIRCUITS

	IC101	VHiKA78S05P-1	J	KA78S05P	AD
▲⚠	IC201	RH-iX3253CEZZ	J	TA1268AN	AV
	IC301	RH-iX3344CEZZ	J	I.C. (14A-30MT)	AK
	IC351	VHiTDA7056A-1	J	TDA7056A (14A-30MT)	AP
⚠	IC501	VHiTA8403K/-1	J	TA8403K	AL
⚠	IC701	VHiSTRF6654-1	J	STRF6654	AX
⚠	IC702	RH-FX0008GEZZ	J	PC123FY8	AE
⚠	IC703	VHiMiP0254/-1	J	MIP0254SPSCF	AL
⚠	IC704	RH-FX0008GEZZ	J	PC123FY8	AE
⚠	IC751	VHiKA7809Pi-1	R	KA7809PI	AE
		or			
		VHiTA7809S/-1			
⚠	IC752	VHiKA7809Pi-1	R	KA7809PI	AE
		or			
		VHiTA7809S/-1			
⚠	IC753	VHiSE115N//-1	J	SE115N	AF
	IC2001	RH-iX3315CEZZ	J	TMP87CK38F	AU
	IC2040	VHiPST994C/-1	J	PST994C	AD
	IC2101	VHiM24C01B/-1	J	M24C01-BN6	AF
		or			
		RH-iX2447CEN1			
	IC3001	VHiCXA2074Q-1	J	CXA2074Q (21A-70ST)	AY
	IC5301	VHiAN5276//-1	J	AN5276 (21A-70ST)	AR

TRANSISTORS

You can substitute "VC2SC2462-C-1" for "VS2SD601AR/-1".

	Q201	VS2SC2735//1E	J	2SC2735	AC
	Q301	VS2SD601AR/-1	J	2SD601AR	AC
	Q351	VS2SC2462-C-1	J	2SC2462 (C) (14A-30MT)	AB
	Q401	VS2SD601AR/-1	J	2SD601AR	AC
	Q402	VS2SB709AR/-1	J	2SB709AR	AC
	Q403	VS2SD601AR/-1	J	2SD601AR	AC
	Q404	VS2SB709AR/-1	J	2SB709AR	AC
	Q451	VS2SB709AR/-1	J	2SB709AR	AC
	Q601	VS2SC2482//-1	J	2SC2482	AD
		or			
		VS2SC2610/-1E			
⚠	Q602	VS2SD2586//1E	J	2SD2586	AM
	Q752	VS2SC1815YW-1	J	2SC1815	AC
	Q753	VS2SC3198-Y-1	J	2SC3198 (Y)	AA
	Q951	VS2SD601AR/-1	J	2SD601AR	AC
	Q953	VS2SD601AR/-1	J	2SD601AR	AC
	Q961	VS2SD601AR/-1	J	2SD601AR (21A-70ST)	AC
	Q963	VS2SD601AR/-1	J	2SD601AR (21A-70ST)	AC
	Q971	VS2SD601AR/-1	J	2SD601AR	AC
	Q2001	VS2SD601AR/-1	J	2SD601AR	AC
	Q2002	VS2SD601AR/-1	J	2SD601AR	AC

DIODES

	D51	RH-EX0611GEZZ	J	Zener Diode, 5.1V	AA
	D52	RH-EX0676GEZZ	J	Zener Diode, 32V	AA
	D53	RH-EX0611GEZZ	J	Zener Diode, 5.1V	AA
	D103	VHD1SS119//-1	J	Diode	AB
	D401	VHD1SS119//-1	J	Diode	AB
	D402	RH-EX0092CEZZ	J	Zener Diode, 3.9V	AB
	D454	RH-EX0103CEZZ	J	Zener Diode, 5.6V	AB
	D455	VHD1SS119//-1	J	Diode	AB
	D501	RH-DX0441CEZZ	J	Diode	AC
⚠	D502	RH-DX0131CEZZ	J	Diode	AC
	D604	VHD1SS119//-1	J	Diode (21A-70ST)	AB
	D641	RH-EX0631GEZZ	J	Zener Diode, 9.1V	AA
▲⚠	D651	RH-DX0131CEZZ	J	Diode	AC
▲⚠	D652	VHD1SS119//-1	J	Diode	AB
▲⚠	D653	RH-EX0091CEZZ	J	Zener Diode, 22V	AB
⚠	D661	RH-DX0444CEZZ	J	Diode	AH

PWB-A: DUNTKA020WEV1 (14A-30MT)
PWB-A: DUNTKA020WEV4 (21A-70ST)
MAIN Unit

Ref. No.	Part No.	★	Description	Code
⚠ D701	RH-DX0386CEZZ	J	Diode	AG
⚠ D702	RH-DX0279CEZZ	J	Diode	AB
⚠ D703	RH-DX0279CEZZ	J	Diode	AB
⚠ D704	RH-DX0279CEZZ	J	Diode	AB
D705	RH-DX0492CEZZ	J	Diode	AE
D706	VHD1SS82///1A	J	Diode	AC
D707	VHD1SS82///1A	J	Diode	AC
D708	RH-DX0400CEZZ	J	Diode	AC
D709	RH-DX0164CEZZ	J	Diode	AC
D710	RH-EX0601GEZZ	J	Zener Diode, 3.6V	AA
⚠ D711	RH-DX0279CEZZ	J	Diode	AB
D712	RH-DX0132CEZZ	J	Diode	AC
D751	VHD1SS119//-1	J	Diode	AB
D752	RH-DX0406CEZZ	J	Diode	AD
D753	RH-EX0641GEZZ	J	Zener Diode, 12V	AA
⚠ D754	RH-DX0445CEZZ	J	Diode	AL
D755	RH-DX0461CEZZ	J	Diode	AG
D756	VHD1SS119//-1	J	Diode	AB
⚠ D758	RH-DX0131CEZZ	J	Diode	AC
D901	RH-EX0630GEZZ	J	Zener Diode, 9V (21A-70ST)	AA
D902	RH-EX0630GEZZ	J	Zener Diode, 9V	AA
D903	RH-EX0630GEZZ	J	Zener Diode, 9V	AA
D960	VHD1SS119//-1	J	Diode	AB
D961	VHD1SS119//-1	J	Diode(21A-70ST)	AB
D2001	VHD1SS119//-1	J	Diode	AB
D2007	RH-EX0611GEZZ	J	Zener Diode, 5.1V	AA
D2202	RH-PX0348CEZZ	J	Photodiode	AB
⚠ VA701	RH-VX0048CEZZ	J	Varistor	AE

PACKGED CIRCUITS

⚠ PR701	RMPTP0026CEZZ	J	Packaged Circuit	AF
X801	RCRSB0001PEZZ or RCRSB0205CEZZ	J	Crystal (14A-30MT)	AL
X801	RCRSB0205CEZZ or RCRSB0001PEZZ	J	Crystal (21A-70ST)	AF

FILTERS

CF301	RFiLC0403CEZZ or RFiLC0029TAZZ	J	Ceramic Filter	AE
CF302	RFiLC0404CEZZ or RFiLC0007PEZZ or RFiLC0267CEZZ	J	Ceramic Filter (21A-70ST)	AF
CF401	RFiLC0013CEZZ or RFiLC0004PEZZ	J	Ceramic Filter	AE
CF631	RFiLA0034CEZZ	J	Ceramic Filter	AD
CF2040	RFiLC0121GEZZ	J	Ceramic Filter	AD

COILS

L201	VP-XF1R2K0000	J	Peaking 1.2µH	AB
L202	RCiLi0612CEZZ or RCiLi0588CEZZ	J	If Coil	AE
L301	VP-XF8R2K0000	J	Peaking 8.2µH	AB
L302	RCiLi0613CEZZ or RCiLi0605CEZZ	J	If Coil	AE
L401	VP-XF6R8K0000	J	Peaking 6.8µH	AB
L402	VP-XF3R3K0000	J	Peaking 3.3µH	AB
L403	VP-XF2R2K0000	J	Peaking 2.2µH	AB
L404	VP-XF8R2K0000	J	Peaking 8.2µH	AB
L405	VP-DF390K0000	J	Peaking 39µH	AB
L406	VP-XF680K0000	J	Peaking 68µH	AB
L409	VP-XF100K0000	J	Peaking 10µH	AB
L631	VP-XF150K0000	J	Peaking 15µH	AB

Ref. No.	Part No.	★	Description	Code
⚠ L702	RCiLF0012PEZZ	R	Coil	AN
L751	RCiLP0225CEZZ	J	Coil	AF
L2040	RCiLB0030PEZZ	J	Oscillation Coil	AF
SF201	RFiLC0405CEZZ	J	SAW Filter	AH

TRANSFORMERS

T601	RTRNZ0073CEZZ	J	H-Driver (14A-30MT)	AF
T601	RTRNZ0367CEZZ	J	Transformer (21A-70ST)	AK
▲⚠ T602	RTRNF0147PEZZ	R	H-Volt (21A-70ST)	BC
▲⚠ T602	RTRNF0141PEZZ	R	H-Volt (14A-30MT)	BC
⚠ T701	RTRNZ0138PEZZ	R	Transformer	AW
⚠ T702	RTRNZ0103GJZZ	J	Transformer	AM

CAPACITORS

[EL.···Electrolytic, M-Poly.···Metalized Polypro Film]

C51	VCEA0A1CW476M	J	47	16V	EL.	AB
C52	VCSATA1CE226K	J	22 (N.P)	16V	Tantalum	AD
C53	VCEA0A1HW105M	J	1	50V	EL.	AB
C54	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C55	VCEA0A1CW108M	J	1000	16V	EL.	AD
C102	VCEAGA1CW108M	J	1000	16V	EL.	AD
C201	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C202	VCKYPA1HF103Z	J	0.01	50V	Ceramic	AA
C203	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C204	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C205	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C206	VCEA0A1CW227M	J	220	16V	EL.	AC
C207	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C208	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C209	VCKYCY1HB222K	J	2200p	50V	Ceramic	AA
C210	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C301	VCEA0A1HW225M	J	2.2 (14A-30MT)	50V	EL.	AB
C302	VCCCCY1HH330J	J	33p	50V	Ceramic	AA
C303	VCCCCY1HH390J	J	39p (21A-70ST)	50V	Ceramic	AA
C303	VCKYCY1HB272K	J	2700p (14A-30MT)	50V	Ceramic	AA
C305	VCKYPA1HB151K	J	150p	50V	Ceramic	AA
C306	VCKYPA1HF103Z	J	0.01	50V	Ceramic	AA
C307	VCEA0A1CW477M	J	470	16V	EL.	AC
C308	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C309	VCEA0A1CW227M	J	220	16V	EL.	AC
C312	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C313	VCE9GA1HW225M	J	2.2 (14A-30MT)	50V	EL (N.P)	AB
C314	VCE9GA1HW225M	J	2.2 (14A-30MT)	50V	EL (N.P)	AB
C316	VCEA0A1CW336M	J	33 (14A-30MT)	16V	EL.	AB
C317	VCEA0A1CW336M	J	33 (14A-30MT)	16V	EL.	AB
C351	VCQYTA1HM823K	J	0.082 (14A-30MT)	50V	Mylar	AB
C352	VCKYCY1HB182K	J	1800p (14A-30MT)	50V	Ceramic	AA
C353	VCEA0A1CW108M	J	1000 (14A-30MT)	16V	EL.	AD
C354	VCEA0A1CW106M	J	10 (14A-30MT)	16V	EL.	AB
C355	VCQYTA1HM104K	J	0.1 (14A-30MT)	50V	Mylar	AC
C401	VCCCCY1HH7R0D	J	7p	50V	Ceramic	AA
C402	VCCCCY1HH331J	J	330p	50V	Ceramic	AA
C403	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C405	VCEA0A1HW335M	J	3.3	50V	EL.	AB
C406	VCEA0A1HW335M	J	3.3	50V	EL.	AB
C408	VCEA0A1CW106M	J	10	16V	EL.	AB
C409	VCEA0A1HW105M	J	1	50V	EL.	AB
C410	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C411	VCEAGA1CW108M	J	1000	16V	EL.	AD
C413	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C414	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C419	VCCCCY1HH330J	J	33p	50V	Ceramic	AA

PWB-A: DUNTKA020WEV1 (14A-30MT)
PWB-A: DUNTKA020WEV4 (21A-70ST)
MAIN Unit

Ref. No.	Part No.	★	Description	Code
C420	VCCCCY1HH221J	J	220p 50V Ceramic (14A-30MT)	AA
C451	VCQYTA1HM563K	J	0.056 50V Mylar	AB
C454	VCEA0A1HW475M	J	4.7 50V EL.	AB
C502	VCEA0A1EW477M	J	470 25V EL.	AD
C504	VCKYPA2HB391K	J	390p 500V Ceramic	AA
C505	VCQYTA1HM473K	J	0.047 50V Mylar	AB
C507	VCQYTA1HM103K	J	0.01 50V Mylar	AB
C508	VCEAGA1VW107M	J	100 35V EL.	AC
C509	VCKYPA2HB102K	J	1000p 500V Ceramic	AA
C510	VCEAGA1VW477M	J	470 35V EL.	AD
C511	VCQYTA1HM473K	J	0.047 50V Mylar	AB
C513	VCEACA1HC225M	J	2.2 50V EL.	AC
C514	VCEACA1HC225J	J	2.2 50V EL. (21A-70ST)	AC
C514	VCEACA1HC335J	J	3.3 50V EL. (14A-30MT)	AC
C517	VCKYPA1HB102K	J	1000p 50V Ceramic	AA
C522	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C551	VCSATA1CE225K	J	2.2 16V Tantalum (N.P)	AB
C552	VCEA0A1HW225M	J	2.2 50V EL.	AB
C553	VCCCCY1HH390J	J	39p 50V Ceramic	AA
C603	VCKYPA2HB222K	J	2200p 500V Ceramic (14A-30MT)	AA
C603	VCKYPA2HB562K	J	5600p 500V Ceramic (21A-70ST)	AC
⚠ C604	VCEAGH2CW227M	J	220 160V EL.	AH
▲⚠ C608	VCFPPD3CA682H	J	6800p 1600V M-Poly. (14A-30MT)	AE
▲⚠ C608	VCFPPD3CA872H	J	8700p 1600V M-Poly. (21A-70ST)	AF
C609	VCKYPA2HB102K	J	1000p 500V Ceramic (14A-30MT)	AA
C609	VCKYPA2HB222K	J	2200p 500V Ceramic (21A-70ST)	AA
C612	VCFPPJ2EB474J	J	0.47 250V M-Poly. (14A-30MT)	AF
C612	VCFPPJ2EB564J	J	0.56 250V M-Poly. (21A-70ST)	AF
C631	VCEA0A1HW225M	J	2.2 50V EL.	AB
C632	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C634	VCEA0A1HW107M	J	100 50V EL.	AB
C652	VCEA0A1HW475M	J	4.7 50V EL.	AB
C653	VCEA0A1CW106M	J	10 16V EL.	AB
C661	VCKYPA2HB152K	J	1500p 500V Ceramic	AA
C662	VCEA0A1CW477M	J	470 16V EL.	AC
⚠ C701	RC-FZ017SCEZZ or RC-FZ032CUMZZ or RC-FZ067SGEZZ or RC-FZ004SCEZZ or RC-FZ021SCEZZ or RC-FZ012SGEZZ or RC-FZ029SCEZZ	J	0.22 275V M-Poly.	AD
C702	VCKYPB2HE103P	J	0.01 500V Ceramic	AB
C703	VCKYPB2HE103P	J	0.01 500V Ceramic	AB
C704	VCEAGA2EW106M	J	10 250V EL.	AC
C705	VCFYHA1HA103J	J	0.01 50V Mylar	AA
C706	RC-KZ0029CEZZ or RC-KZ0160GEZZ	J	0.01 250V Ceramic	AC
⚠ C707	RC-EZ0804CEZZ	J	220 400V EL.	AU
C708	RC-KZ1022CEZZ	J	47p 1kV Ceramic	AC
C709	VCKYPB2HE103P	J	0.01 500V Ceramic	AB
C710	VCQYTA1HM471J	J	470p 50V Mylar	AB
C711	RC-KZ0339CEZZ	J	680p 2kV Ceramic	AD
C712	VCQYTA1HM102J	J	1000p 50V Mylar	AA
C713	RC-KZ007JCEZZ	J	0.01 250V Ceramic	AC
C714	RC-KZ0338CEZZ	J	560p 2kV Ceramic	AD
C715	VCKYPA2HB102K	J	1000p 500V Ceramic	AA
C716	VCEAGA1EW107M	J	100 25V EL.	AD
C717	VCQYTA1HM182J	J	1800p 50V Mylar	AA
C718	VCKYPB2HE103P	J	0.01 500V Ceramic	AB
C719	VCKYPB2HE103P	J	0.01 500V Ceramic	AB
C720	VCKYPB2HE103P	J	0.01 500V Ceramic	AB
C721	VCKYPA2HB821K	J	820p 500V Ceramic	AA
⚠ C730	RC-KZ0311CEZZ or RC-KZ0092CEZZ	J	3300p 125V Ceramic	AD
C750	VCEA0A1CW476M	J	47 16V EL.	AB
C751	VCEA0A1CW477M	J	470 16V EL.	AC
C752	VCEA0A1CW477M	J	470 16V EL.	AC
C754	VCEAGA1EW108M	J	1000 25V EL.	AD
C755	VCKYPA2HB102K	J	1000p 500V Ceramic	AA
C756	VCKYD41HB102K	J	1000p 50V Ceramic	AA
⚠ C757	VCEA4W2CN227M	J	220 160V EL.	AG
C758	VCEAGA2EW106M	J	10 250V EL.	AC
C759	VCKYPA2HB102K	J	1000p 500V Ceramic	AA
C760	VCEA0A1CW337M	J	330 16V EL.	AC
C761	VCQYTA1HM104K	J	0.1 50V Mylar	AC
C762	RC-KZ0339CEZZ	J	680p 2kV Ceramic	AD
C763	VCFYHA1HA184J	J	0.18 50V M-Poly.	AC
C767	VCEA0A1CW107M	J	100 16V EL.	AC
C801	VCQYTA1HM223K	J	0.022 50V Mylar	AB
C802	VCEA0A1HW474M	J	0.47 50V EL.	AB
C803	VCCCCY1HH120J	J	12p 50V Ceramic	AA
C804	VCEA0A1HW104M	J	0.1 50V EL.	AB
C805	VCEA0A1HW104M	J	0.1 50V EL.	AB
C806	VCEA0A1HW104M	J	0.1 50V EL.	AB
C807	VCCCCY1HH820J	J	82p 50V Ceramic	AA
C901	VCKYCY1EF104Z	J	0.1 25V Ceramic	AA
C904	VCEA0A1HW335M	J	3.3 50V EL. (21A-70ST)	AB
C905	VCEA0A1HW335M	J	3.3 50V EL.	AB
C950	VCEAGA1CW108M	J	1000 16V EL.	AD
C951	VCEA0A1HW335M	J	3.3 50V EL.	AB
C953	VCEA0A1HW335M	J	3.3 50V EL. (21A-70ST)	AB
C954	VCQYTA1HM103K	J	0.01 50V Mylar (21A-70ST)	AB
C955	VCEA0A1HW335M	J	3.3 50V EL.	AB
C956	VCEA0A1HW335M	J	3.3 50V EL. (21A-70ST)	AB
C960	VCEAGA1CW336M	J	33 16V EL.	AB
C961	VCEA0A1HW335M	J	3.3 50V EL. (21A-70ST)	AB
C963	VCEA0A1HW335M	J	3.3 50V EL.	AB
C964	VCQYTA1HM103K	J	0.01 50V Mylar	AB
C971	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C973	VCEA0A1CW106M	J	10 16V EL.	AB
C974	VCEAGA1CW106M	J	10 16V EL.	AA
C980	VCEA0A1CW477M	J	470 16V EL.	AC
C2001	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2002	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2003	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2004	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2021	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2022	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2023	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2024	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2040	VCEA0A1AW107M	J	100 10V EL.	AB
C2041	VCEA0A1HW105M	J	1 50V EL.	AB
C2062	VCEA0A1AW107M	J	100 10V EL.	AB
C2401	VCCCPA1HH560J	J	56p 50V Ceramic	AA
C2402	VCCCPA1HH560J	J	56p 50V Ceramic	AA
C2601	VCEA0A1CW476M	J	47 16V EL.	AB
C2602	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C3001	VCE9GA1HW475M	J	4.7 50V EL (N.P) (21A-70ST)	AB
C3002	VCKYCY1HB562K	J	5600p 50V Ceramic (21A-70ST)	AA

PWB-A: DUNTKA020WEV1 (14A-30MT)
PWB-A: DUNTKA020WEV4 (21A-70ST)
MAIN Unit

Ref. No.	Part No.	★	Description	Code
C3003	VCQYTA1HM123K	J	0.012 50V Mylar (21A-70ST)	AA
C3004	VCEA0A1HW105M	J	1 50V EL. (21A-70ST)	AB
C3005	VCEA0A1HW475M	J	4.7 50V EL. (21A-70ST)	AB
C3006	VCEA0A1HW106M	J	10 50V EL. (21A-70ST)	AB
C3007	VCEA0A1HW475M	J	4.7 50V EL. (21A-70ST)	AB
C3008	VCKYCY1HF103Z	J	0.01 50V Ceramic (21A-70ST)	AA
C3009	VCEA0A1CW227M	J	220 16V EL. (21A-70ST)	AC
C3010	VCE9GA1HW475M	J	4.7 50V EL (N.P) (21A-70ST)	AB
C3011	VCEA0A1HW475M	J	4.7 50V EL. (21A-70ST)	AB
C3012	VCE9GA1HW475M	J	4.7 50V EL (N.P) (21A-70ST)	AB
C3013	VCKYCY1HB272K	J	2700p 50V Ceramic (21A-70ST)	AA
C3014	VCQYTA1HM473K	J	0.047 50V Mylar (21A-70ST)	AB
C3015	VCSATA1CE335K	J	3.3 16V Tantalum (N.P)(21A-70ST)	AC
C3016	VCE9GA1HW475M	J	4.7 50V EL. (N.P) (21A-70ST)	AB
C3017	VCSATA1CE106K	J	10 16V Tantalum (N.P)(21A-70ST)	AD
C3018	VCEA0A1HW105M	J	1 50V EL. (21A-70ST)	AB
C3019	VCKYCY1HF103Z	J	0.01 50V Ceramic (21A-70ST)	AA
C3020	VCKYCY1HF103Z	J	0.01 50V Ceramic (21A-70ST)	AA
C3021	VCKYCY1HF103Z	J	0.01 50V Ceramic (21A-70ST)	AA
C3022	VCKYCY1HF103Z	J	0.01 50V Ceramic (21A-70ST)	AA
C3023	VCKYCY1HF103Z	J	0.01 50V Ceramic (21A-70ST)	AA
C3024	VCKYCY1HF103Z	J	0.01 50V Ceramic (21A-70ST)	AA
C3025	VCKYCY1HF103Z	J	0.01 50V Ceramic (21A-70ST)	AA
C3026	VCKYCY1HF103Z	J	0.01 50V Ceramic (21A-70ST)	AA
C5301	VCEAGA1VW108M	J	1000 35V EL.	AD
C5302	VCEAGA1HW225M	J	2.2 50V EL. (21A-70ST)	AB
C5303	VCEAGA1HW225M	J	2.2 50V EL. (21A-70ST)	AB
C5304	VCEAGA1HW225M	J	2.2 50V EL. (21A-70ST)	AB
C5305	VCEAGA1HW106M	J	10 50V EL. (21A-70ST)	AC
C5306	VCQYTA1HM472K	J	4700p 50V Mylar (21A-70ST)	AB
C5307	VCQYTA1HM472K	J	4700p 50V Mylar (21A-70ST)	AB
C5308	VCEAGA1VW107M	J	100 35V EL. (21A-70ST)	AC
C5309	VCEAGA1EW108M	J	1000 25V EL. (21A-70ST)	AD
C5310	VCEAGA1EW108M	J	1000 25V EL. (21A-70ST)	AD

RESISTORS

[M-Ox.··· Metal Oxide, M-Film···Metal Film]

Ref. No.	Part No.	★	Description	Code
RJ1	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ2	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ3	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
RJ6	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
RJ7	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ10	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
RJ11	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
RJ12	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
RJ14	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ15	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
RJ16	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
RJ17	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ18	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ19	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ20	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ21	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ22	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ23	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ24	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ25	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ26	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ27	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ28	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ29	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ31	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ32	VRS-CY1JF000J	J	0 1/16W M-Ox. (21A-70ST)	AA
RJ33	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ37	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ39	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ41	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ42	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ43	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
RJ44	VRS-CY1JF000J	J	0 1/16W M-Ox (21A-70ST)	AA
RJ45	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
RJ46	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
RJ47	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
RJ48	VRS-CY1JF000J	J	0 1/16W M-Ox. (14A-30MT)	AA
⚠ R51	VRS-VV3DB151J	J	150 2W M-Ox.	AA
R52	VRS-VV3DB470J	J	47 2W M-Ox.	AA
⚠ R53	VRS-VV3LB223J	J	22k 3W M-Ox.	AB
R54	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R55	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R56	VRS-CY1JF823J	J	82k 1/16W M-Ox.	AA
R57	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R201	VRS-CY1JF221J	J	220 1/16W M-Ox.	AA
R202	VRS-CY1JF122J	J	1.2k 1/16W M-Ox.	AA
R203	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
R204	VRS-CY1JF270J	J	27 1/16W M-Ox.	AA
R205	VRS-CY1JF391J	J	390 1/16W M-Ox.	AA
R206	VRD-RA2EE151J	J	150 1/4W Carbon	AA
R208	VRS-CY1JF391J	J	390 1/16W M-Ox.	AA
R301	VRD-RA2BE222J	J	2.2k 1/8W Carbon	AA
R302	VRS-CY1JF102J	J	1k 1/16W M-Ox.	AA
R303	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R304	VRS-CY1JF333J	J	33k 1/16W M-Ox.	AA
R305	VRS-CY1JF102J	J	1k 1/16W M-Ox. (21A-70ST)	AA
R306	VRS-CY1JF152J	J	1.5k 1/16W M-Ox.	AA
R307	VRD-RA2BE683J	J	68k 1/8W Carbon (14A-30MT)	AA
R308	VRD-RA2BE391J	J	390 1/8W Carbon (14A-30MT)	AA
R309	VRD-RA2BE473J	J	47k 1/8W Carbon (14A-30MT)	AA

PWB-A: DUNTKA020WEV1 (14A-30MT)
PWB-A: DUNTKA020WEV4 (21A-70ST)
MAIN Unit

Ref. No.	Part No.	★	Description	Code
R311	VRS-CY1JF273J	J	27k 1/16W M-Ox. (14A-30MT)	AA
R351	VRD-RA2BE153J	J	15k 1/8W Carbon (14A-30MT)	AA
R352	VRD-RA2BE4R7J	J	4.7 1/8W Carbon (14A-30MT)	AA
R355	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R401	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
R402	VRS-CY1JF472J	J	4.7k 1/16W M-Ox.	AA
R403	VRS-CY1JF331J	J	330 1/16W M-Ox.	AA
R404	VRS-CY1JF391J	J	390 1/16W M-Ox.	AA
R405	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R406	VRS-CY1JF470J	J	47 1/16W M-Ox.	AA
R407	VRS-CY1JF680J	J	68 1/16W M-Ox.	AA
R408	VRS-CY1JF102J	J	1k 1/16W M-Ox.	AA
R409	VRS-CY1JF471J	J	470 1/16W M-Ox.	AA
R410	VRD-RA2BE563J	J	56k 1/8W Carbon	AA
R411	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R412	VRD-RA2EE561J	J	560 1/4W Carbon	AA
R413	VRD-RA2BE470J	J	47 1/8W Carbon	AA
R414	VRD-RA2BE470J	J	47 1/8W Carbon	AA
R415	VRD-RA2BE470J	J	47 1/8W Carbon	AA
R416	VRS-CY1JF102J	J	1k 1/16W M-Ox.	AA
R417	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R418	VRS-CY1JF152J	J	1.5k 1/16W M-Ox.	AA
R419	VRS-CY1JF472J	J	4.7k 1/16W M-Ox.	AA
R423	VRS-CY1JF222J	J	2.2k 1/16W M-Ox.	AA
R426	VRS-CY1JF271J	J	270 1/16W M-Ox.	AA
R440	VRS-CY1JF821J	J	820 1/16W M-Ox.	AA
⚠ R451	VRS-VV3AB103J	J	10k 1W M-Ox.	AA
R452	VRD-RA2BE152J	J	1.5k 1/8W Carbon	AA
R454	VRD-RA2BE334J	J	330k 1/8W Carbon	AA
R455	VRD-RA2BE392J	J	3.9k 1/8W Carbon	AA
R456	VRS-CY1JF223J	J	22k 1/16W M-Ox.	AA
R457	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R458	VRD-RA2BE334J	J	330k 1/8W Carbon (21A-70ST)	AA
R458	VRD-RA2BE564J	J	560k 1/8W Carbon (14A-30MT)	AA
R459	VRD-RA2BE123J	J	12k 1/8W Carbon	AA
R504	VRD-RA2BE471J	J	470 1/8W Carbon	AA
R505	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R506	VRD-RA2BE683G	J	68k 1/8W Carbon	AA
R507	VRD-RA2BE104G	J	10k 1/8W Carbon	AA
R508	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
R510	VRD-RM2HD1R2J	J	1.2 1/2W Carbon (21A-70ST)	AA
R510	VRD-RM2HD1R5J	J	1.5 1/2W Carbon (14A-30MT)	AA
⚠ R511	VRN-VV3AB1R5J	J	1.5 1W M-Film. (21A-70ST)	AA
⚠ R511	VRN-VV3AB3R9J	J	3.9 1W M-Film. (14A-30MT)	AA
R512	VRD-RM2HD271J	J	270 1/2W Carbon (14A-30MT)	AA
R512	VRD-RM2HD331J	J	330 1/2W Carbon (21A-70ST)	AA
R516	VRD-RA2BE153G	J	15k 1/8W Carbon (14A-30MT)	AA
R516	VRD-RA2BE683G	J	68k 1/8W Carbon (21A-70ST)	AA
R517	VRD-RA2BE103G	J	10k 1/8W Carbon (21A-70ST)	AA
R517	VRD-RA2BE123G	J	12k 1/8W Carbon (14A-30MT)	AA
R518	VRD-RA2BE154J	J	150k 1/8W Carbon	AA
R524	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA
R525	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
R552	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R553	VRS-CY1JF273J	J	27k 1/16W M-Ox.	AA
R554	VRS-CY1JF472J	J	4.7k 1/16W M-Ox.	AA
R602	VRD-RM2HD392J	J	3.9k 1/2W Carbon (14A-30MT)	AA
R602	VRD-RM2HD472J	J	4.7k 1/2W Carbon (21A-70ST)	AA
⚠ R603	VRS-SV3LB182J	J	1.8k 3W M-Ox.	AB
R608	VRD-RA2BE471J	J	470 1/8W Carbon	AA
R609	VRD-RA2BE331J	J	330 1/8W Carbon	AA
⚠ R610	VRS-VV3DB391J	J	390 2W M-Ox.	AA
R620	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
R621	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
R631	VRS-CY1JF391J	J	390 1/16W M-Ox.	AA
R632	VRD-RA2BE152J	J	1.5k 1/8W Carbon	AA
R633	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA
⚠ R641	VRS-VV3AB682J	J	6.8k 1W M-Ox.	AA
R642	VRD-RA2BE102J	J	1k 1/8W Carbon (14A-30MT)	AA
R642	VRD-RA2BE821J	J	820 1/8W Carbon (21A-70ST)	AA
▲⚠ R651	VRD-RM2HD1R0J	J	1 1/2W Carbon	AA
▲⚠ R653	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
▲⚠ R654	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
▲⚠ R655	VRS-CY1JF104J	J	10k 1/16W M-Ox.	AA
⚠ R659	VRN-VV3AB1R8J	J	1.8 1W M-Film. (14A-30MT)	AA
⚠ R659	VRN-VV3ABR82J	J	0.82 1W M-Film. (21A-70ST)	AA
⚠ R661	VRN-VV3ABR47J	J	0.47 1W M-Film.	AA
⚠ R701	VRW-KP41C3R3K	J	3.3 15W Cement (21A-70ST)	AD
⚠ R701	VRW-KQ41C3R3K	J	3.3 15W Cement (14A-30MT)	AG
⚠ R702	VRS-KT3LB473J	J	47k 3W M-Ox.	AE
⚠ R703	VRS-KT3LB473J	J	47k 3W M-Ox.	AE
R704	VRD-RM2HD330J	J	33 1/2W Carbon	AA
R705	VRD-RA2BE122J	J	1.2k 1/8W Carbon	AA
R706	VRD-RM2HD152J	J	1.5k 1/2W Carbon	AA
⚠ R707	VRS-KT3LB473J	J	47k 3W M-Ox.	AE
R708	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA
R709	VRD-RA2BE681J	J	680 1/8W Carbon	AA
⚠ R710	VRN-VV3ABR39J	J	0.39 1W M-Film.	AA
⚠ R711	VRN-VV3ABR33J	J	0.33 1W M-Film.	AA
R712	VRD-RM2HD150J	J	15 1/2W Carbon	AA
R714	VRD-RM2HD104J	J	100k 1/2W Carbon	AA
R717	VRD-RM2HD124J	J	120k 1/2W Carbon	AA
R718	VRD-RM2HD124J	J	120k 1/2W Carbon	AA
R719	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R722	VRD-RM2HD124J	J	120k 1/2W Carbon	AA
⚠ R725	RH-HZ0046CEZZ or RH-DZ0047CEZZ	J	2.7M 1/2W Solid	AQ
R751	VRD-RA2BE104J	J	100k 1/8W Carbon	AA
R752	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
⚠ R753	VRS-KA3HG3R3K	J	3.3 5W M-Ox.	AD
R754	VRD-RA2BE101J	J	100 1/8W Carbon (14A-30MT)	AB
R754	VRD-RA2BE392J	J	3.9k 1/8W Carbon (21A-70ST)	AA
⚠ R755	VRS-VV3DB470J	J	47 2W M-Ox.	AA
R756	VRD-RA2BE562J	J	5.6k 1/8W Carbon	AA
⚠ R757	VRN-VV3DB1R8J	J	1.8 2W M-Film. (14A-30MT)	AB
⚠ R758	VRS-SV2HC180J	J	18 1/2W M-Ox.	AA
R760	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R801	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA
R802	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA
R803	VRS-CY1JF182J	J	1.8k 1/16W M-Ox. (14A-30MT)	AA
R803	VRS-CY1JF222J	J	2.2k 1/16W M-Ox. (21A-70ST)	AA
R804	VRS-CY1JF182J	J	1.8k 1/16W M-Ox. (14A-30MT)	AA
R804	VRS-CY1JF222J	J	2.2k 1/16W M-Ox. (21A-70ST)	AA
R805	VRS-CY1JF182J	J	1.8k 1/16W M-Ox. (14A-30MT)	AA

PWB-A: DUNTKA020WEV1 (14A-30MT)
PWB-A: DUNTKA020WEV4 (21A-70ST)
MAIN Unit

Ref. No.	Part No.	★	Description	Code
R805	VRS-CY1JF222J	J	2.2k 1/16W M-Ox. (21A-70ST)	AA
R806	VRS-CY1JF333J	J	33k 1/16W M-Ox.	AA
R902	VRS-CY1JF750J	J	75 1/16W M-Ox.	AA
R905	VRS-CY1JF102J	J	1k 1/16W M-Ox. (21A-70ST)	AA
R906	VRS-CY1JF102J	J	1k 1/16W M-Ox. (21A-70ST)	AA
R924	VRS-CY1JF104J	J	100k 1/16W M-Ox. (21A-70ST)	AA
R925	VRS-CY1JF104J	J	100k 1/16W M-Ox.	AA
R950	VRN-VV3AB1R0J	J	1 1W M-Film.	AA
R951	VRS-CY1JF154J	J	150k 1/16W M-Ox. (14A-30MT)	AA
R951	VRS-CY1JF334J	J	330k 1/16W M-Ox. (21A-70ST)	AA
R952	VRS-CY1JF154J	J	150k 1/16W M-Ox. (21A-70ST)	AA
R952	VRS-CY1JF683J	J	68k 1/16W M-Ox. (14A-30MT)	AA
R953	VRD-RA2BE392J	J	3.9k 1/8W Carbon (14A-30MT)	AA
R954	VRS-CY1JF472J	J	4.7k 1/16W M-Ox.	AA
R957	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA
R958	VRS-CY1JF102J	J	1k 1/16W M-Ox. (21A-70ST)	AA
R960	VRS-CY1JF683J	J	68k 1/16W M-Ox.	AA
R961	VRS-CY1JF334J	J	330k 1/16W M-Ox. (21A-70ST)	AA
R962	VRS-CY1JF154J	J	150k 1/16W M-Ox. (21A-70ST)	AA
R963	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA
R964	VRS-CY1JF472J	J	4.7k 1/16W M-Ox. (21A-70ST)	AA
R965	VRS-CY1JF103J	J	10k 1/16W M-Ox. (21A-70ST)	AA
R966	VRS-CY1JF103J	J	10k 1/16W M-Ox. (21A-70ST)	AA
R967	VRS-CY1JF332J	J	3.3k 1/16W M-Ox. (21A-70ST)	AA
R968	VRS-CY1JF101J	J	100 1/16W M-Ox. (14A-30MT)	AA
R968	VRS-CY1JF102J	J	1k 1/16W M-Ox. (21A-70ST)	AA
R969	VRS-CY1JF472J	J	4.7k 1/16W M-Ox. (21A-70ST)	AA
R971	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R972	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R973	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
R974	VRS-CY1JF153J	J	15k 1/16W M-Ox.	AA
R975	VRD-RA2EE221J	J	220 1/4W Carbon	AA
R976	VRS-VV3AB100J	J	10 1W M-Ox.	AA
R977	VRS-CY1JF391J	J	390 1/16W M-Ox.	AA
R978	VRS-CY1JF153J	J	15k 1/16W M-Ox.	AA
R980	VRS-CY1JF470J	J	47 1/16W M-Ox.	AA
R981	VRS-CY1JF104J	J	100k 1/16W M-Ox.	AA
R2002	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2003	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2004	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2005	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2006	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2007	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA
R2008	VRD-RA2BE333J	J	33k 1/8W Carbon	AA
R2009	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R2010	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R2012	VRS-CY1JF391J	J	390 1/16W M-Ox.	AA
R2020	VRD-RM2HD223J	J	22k 1/2W Carbon	AA
R2022	VRD-RA2BE333J	J	33k 1/8W Carbon	AA
R2024	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R2025	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R2026	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R2027	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R2028	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R2029	VRS-CY1JF102J	J	1k 1/16W M-Ox.	AA
R2032	VRD-RA2BE471J	J	470 1/8W Carbon	AA
R2033	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2040	VRS-CY1JF102J	J	1k 1/16W M-Ox.	AA
R2041	VRD-RA2BE333J	J	33k 1/8W Carbon	AA
R2042	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R2043	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R2044	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
R2045	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2047	VRS-CY1JF221J	J	220 1/16W M-Ox.	AA
R2048	VRS-CY1JF562J	J	5.6k 1/16W M-Ox.	AA
R2049	VRS-CY1JF333J	J	33k 1/16W M-Ox.	AA
R2054	VRS-CY1JF222J	J	2.2k 1/16W M-Ox.	AA
R2055	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R2060	VRD-RA2BE221J	J	220 1/8W Carbon	AA
R2061	VRS-CY1JF562J	J	5.6k 1/16W M-Ox.	AA
R2062	VRS-CY1JF183J	J	18k 1/16W M-Ox.	AA
R2066	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2067	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2068	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2070	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2101	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2102	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2201	VRD-RA2EE102J	J	1k 1/4W Carbon	AA
R2501	VRS-CY1JF123J	J	12k 1/16W M-Ox.	AA
R2503	VRS-CY1JF273J	J	27k 1/16W M-Ox.	AA
R2504	VRS-CY1JF123J	J	12k 1/16W M-Ox.	AA
R2505	VRS-CY1JF563J	J	56k 1/16W M-Ox.	AA
R2506	VRS-CY1JF563J	J	56k 1/16W M-Ox.	AA
R2507	VRS-CY1JF823J	J	82k 1/16W M-Ox.	AA
R2508	VRS-CY1JF153J	J	15k 1/16W M-Ox.	AA
R2509	VRS-CY1JF272J	J	2.7k 1/16W M-Ox.	AA
R2601	VRD-RA2BE470J	J	47 1/8W Carbon	AA
R3001	VRD-RA2BE221J	J	220 1/8W Carbon (21A-70ST)	AA
R3002	VRD-RA2BE221J	J	220 1/8W Carbon (21A-70ST)	AA
R3003	VRS-CY1JF105J	J	1M 1/16W M-Ox (21A-70ST)	AA
R3004	VRS-CY1JF104J	J	100k 1/16W M-Ox (21A-70ST)	AA
R3005	VRS-CY1JF623J	J	62k 1/16W M-Ox (21A-70ST)	AA
R3007	VRS-CY1JF332J	J	3.3k 1/16W M-Ox (21A-70ST)	AA
R3008	VRS-CY1JF302J	J	3k 1/16W M-Ox (21A-70ST)	AA
R3010	VRS-CY1JF392J	J	3.9k 1/16W M-Ox (21A-70ST)	AA
R3011	VRD-RA2BE102J	J	1k 1/8W Carbon (21A-70ST)	AA
R3012	VRD-RA2BE102J	J	1k 1/8W Carbon (21A-70ST)	AA
R5302	VRD-RA2BE822J	J	8.2k 1/8W Carbon (21A-70ST)	AA
R5303	VRS-CY1JF683J	J	68k 1/16W M-Ox (21A-70ST)	AA
R5304	VRD-RA2BE103J	J	10k 1/8W Carbon (21A-70ST)	AA
R5305	VRS-CY1JF103J	J	10k 1/16W M-Ox (21A-70ST)	AA
R5306	VRS-CY1JF683J	J	68k 1/16W M-Ox (21A-70ST)	AA
R5307	VRD-RA2BE102J	J	1k 1/8W Carbon (21A-70ST)	AA

SWITCHES

S2501	QSW-P0593CEZZ	J	Power	AE
S2502	QSW-K0079GEZZ	J	Vol-Down	AB
S2503	QSW-K0079GEZZ	J	Vol-Up	AB
S2504	QSW-K0079GEZZ	J	Ch-Down	AB
S2505	QSW-K0079GEZZ	J	Ch-Up	AB
S2506	QSW-K0079GEZZ	J	Menu	AB

PWB-A: DUNTKA020WEV1 (14A-30MT)
PWB-A: DUNTKA020WEV4 (21A-70ST)
MAIN Unit

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
⚠ RY751	RRLYJ0081CEZZ	J	Relay	AL
⚠ F701	QFS-B4023CEZZ	J	Fuse,4A (125V)	AC
	or			
	QFS-B4021GEZZ			
FB602	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB603	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB701	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB702	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB703	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB704	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB751	RBLN-0037CEZZ	J	Ferrite Bead (21A-70ST)	AB
FB752	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB753	RBLN-0037CEZZ	J	Ferrite Bead (14A-30MT)	AB
FB754	RBLN-0037CEZZ	J	Ferrite Bead	AB
⚠ FH701	QFSHD1013CEZZ	J	Fuse Holder	AC
⚠ FH702	QFSHD1014CEZZ	J	Fuse Holder	AC
P51	QPLGN0160CEZZ	J	Plug, 1-Pin (SG)	AB
P52	QPLGN0160CEZZ	J	Plug, 1-Pin (SG)	AB
P302	QPLGN0461CEZZ	J	Plug, 4-Pin (S) (14A-30MT)	AB
P401	QPLGN0561CEZZ	J	Plug, 5-Pin (GBN)	AB
P601	QPLGN0603CEZZ	J	Plug, 6-Pin (K)	AB
P651	QPLGN0361CEZZ	J	Plug, 3-Pin (PL)	AB
P702	QPLGN0207CEZZ	J	Plug, 2-Pin (m)	AA
P751	QPLGN0461CEZZ	J	Plug, 4-Pin (YBN)	AB
P998	QPLGN0450CEZZ	J	Plug, 3-Pin (E) (14A-30MT)	AA
P998	QPLGN0550CEZZ	J	Plug, 5-Pin (E) (21A-70ST)	AB
P999	QPLGN0450CEZZ	J	Plug, 3-Pin (D) (14A-30MT)	AA
P999	QPLGN0550CEZZ	J	Plug, 5-Pin (D) (21A-70ST)	AB
P2001	QPLGN0561CEZZ	J	Plug, 5Pin	AB
P5301	QPLGN0461CEZZ	J	Plug, 4-Pin (21A-70ST)	AB
RMC2601	RRMCU0222CEZZ	J	R/C Receiver	AL
RDA351	PRDAR0142PEFW	R	Heat Sink (14A-30MT)	AD
RDA501	PRDAR0218PEFW	R	Heat Sink	AD
RDA602	PRDAR0216PEFW	R	Heat Sink	AE
RDA701	PRDAR0260PEFW	R	Heat Sink	AH
RDA754	PRDAR0160PEFW	R	Heat Sink	AF
RDA5301	PRDAR0258PEFW	R	Heat Sink (21A-70ST)	AG
TAN901	QJAKH0011AJZZ	J	Terminal (14A-30MT)	AK
TAN901	QTANJ0644CEZZ	J	Terminal (21A-70ST)	AM
	PRDAR0160PEFW	R	Heat Sink	AF
	QCNW-2396PEZZ	J	Connecting Cord (14A-30MT)	AE

PWB-B: DUNTK9432WEV7 (14A-30MT)
PWB-B: DUNTK9432WEV9 (21A-70ST)
CRT UNIT

TRANSISTORS

Ref. No.	Part No.	★	Description	Code
Q852	VS2SC2229O/1E	J	2SC2229O	AD
Q854	VS2SC2229O/1E	J	2SC2229O	AD
Q856	VS2SC2229O/1E	J	2SC2229O	AD
Q881	VS2SA1266-Y-1	J	2SA1266(Y)	AA

DIODES

You can substitute "RH-DX0045GEZZ" and "VHD-DX0446CEZZ" for "VHD1SS119//-1".

Ref. No.	Part No.	★	Description	Code
D881	VHD1SS119//-1	J	Diode	AB
D882	VHD1SS119//-1	J	Diode	AB
D885	VHD1SS119//-1	J	Diode	AB

COIL

Ref. No.	Part No.	★	Description	Code
L851	VP-DF151K0000	J	Peaking 150µH	AB

CAPACITORS

[EL.···Electrolytic]

Ref. No.	Part No.	★				Code
C851	VCKYPA1HB271K	J	270p	50V	Ceramic	AA
C852	VCKYPA1HB271K	J	270p	50V	Ceramic	AA
C853	VCKYPA1HB271K	J	270p	50V	Ceramic	AA
C854	RC-KZ0016CEZZ	J	0.01	1.4kV	Ceramic	AC
C881	VCEA0A1CW106M	J	10	16V	EL.	AB
C883	VCEA0A1CW336M	J	33	16V	EL.	AB

RESISTORS

[M-Ox.··· Metal Oxide]

Ref. No.	Part No.	★				Code
R851	VRD-RA2BE470J	J	47 (21A-70ST)	1/8W	Carbon	AA
R852	VRD-RA2BE221J	J	220 (21A-70ST)	1/8W	Carbon	AA
R852	VRD-RA2BE271J	J	270 (14A-30MT)	1/8W	Carbon	AA
R853	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
R854	VRD-RA2BE470J	J	47 (14A-30MT)	1/8W	Carbon	AA
R855	VRD-RA2BE470J	J	47 (14A-30MT)	1/8W	Carbon	AA
⚠ R857	VRS-VV3AB123J	J	12k	1W	M-Ox.	AA
R858	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
R859	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R860	VRD-RA2BE221J	J	220 (21A-70ST)	1/8W	Carbon	AA
R860	VRD-RA2BE271J	J	270 (14A-30MT)	1/8W	Carbon	AA
R861	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
⚠ R865	VRS-VV3AB123J	J	12k	1W	M-Ox.	AA
R866	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
R867	VRD-RA2BE470J	J	47 (21A-70ST)	1/8W	Carbon	AA
R868	VRD-RA2BE221J	J	220 (21A-70ST)	1/8W	Carbon	AA
R868	VRD-RA2BE271J	J	270 (14A-30MT)	1/8W	Carbon	AA
R869	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
⚠ R873	VRS-VV3AB123J	J	12k	1W	M-Ox.	AA
R874	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
R881	VRD-RA2BE102J	J	1k	1/8W	Carbon	AA
R882	VRD-RA2BE391J	J	390	1/8W	Carbon	AA
R883	VRD-RA2BE561J	J	560	1/8W	Carbon	AA
R884	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R885	VRD-RA2BE470J	J	47	1/8W	Carbon	AA

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
P851	QPLGN0561CEZZ	J	Plug, 5-Pin (GBN)	AB
P852	QPLGN0461CEZZ	J	Plug, 4-Pin (YBN)	AB
SC851	QSOCV0842CEZZ	J	CRT Socket (14A-30MT)	AH
SC851	QSOCV0933CEZZ	J	CRT Socket (21A-70ST)	AH

Ref. No.	Part No.	★	Description	Code

PWB-C: DUNTKA060WEV1 (14A-30MT)
PWB-C: DUNTKA060WEV4 (21A-70ST)
FRONT AV UNIT

MISCELLANEOUS PARTS

J1001	QJAKE0108CEZZ	J	Jack, Video in	AC
J1002	QJAKE0183CEZZ	J	Jack, Audio in (14A-30MT)	AE
J1002	QJAKE0183CEZZ	J	Jack, Audio in (L) (21A-70ST)	AE
J1003	QJAKE0184CEZZ	J	Jack, Audio in (R) (21A-70ST)	AE
P1001	QPLGN0550CEZZ	J	Plug, 5-Pin (D) (21A-70ST)	AB
P1002	QPLGN0550CEZZ	J	Plug, 5-Pin (E) (21A-70ST)	AB
P1001	QPLGN0450CEZZ	J	Plug, 4-pin (D) (14A-30MT)	AA
P1002	QPLGN0450CEZZ	J	Plug, 4-pin (E) (14A-30MT)	AA

MISCELLANEOUS PARTS

SP1	VSP9050PB108A	J	Speaker (L) (14A-30MT)	AP
SP2	VSP9050PB108A	J	Speaker (R) (14A-30MT)	AP
SP1	VSP1206PB406E	J	Speaker (L) (21A-70ST)	AU
SP2	VSP1206PB406E	J	Speaker (R) (21A-70ST)	AU
⚠	QACCD3044CESA or QACCD3092CESA	J	AC Cord	AM
	QCNW-2048PEZZ	R	Connecting Cord (21A-70ST)	AL
	QCNW-2106PEZZ	R	Connecting Cord (14A-30MT)	AE
	QCNW-2110PEZZ	R	Connecting Cord (14A-30MT)	AG
	QCNW-2160PEZZ	R	Connecting Cord (21A-70ST)	AG
	QCNW-2171PEZZ	R	Connecting Cord (21A-70ST)	AF
	QCNW-2384PEZZ	R	Connecting Cord (14A-30MT)	AF
	QCNW-2385PEZZ	R	Connecting Cord (14A-30MT)	AG
	QCNW-2386PEZZ	R	Connecting Cord (14A-30MT)	AG
	QCNW-2387PEZZ	R	Connecting Cord (21A-70ST)	AH
	QCNW-2388PEZZ	R	Connecting Cord (21A-70ST)	AH
	QCNW-2396PEZZ	R	Connecting Cord (14A-30MT)	AE
	QCNW-2403PEZZ	R	Connecting Cord (14A-30MT)	AE
	QCNW-2404PEZZ	R	Connecting Cord (21A-70ST)	AE

Ref. No.	Part No.	★	Description	Code

SUPPLIED ACCESORRIES

	TiNS-6778PEZZ	R	Operation Manual (14A-30MT)	AF
	TiNS-6781PEZZ	R	Operation Manual (21A-70ST)	AF
	QPLGF0125CEZZ	R	Antenna Adapter (21A-70ST)	AM
	RRMCG1519CESA	R	Infrared R/C Unit	AR
	TGAN-0167PEZZ	R	Guarantee Card (14A-30MT)	AF
	TGAN-0170PEZZ	R	Guarantee Card (21A-70ST)	AF
	TCAUA0002PEZZ	R	Caution Card	AB

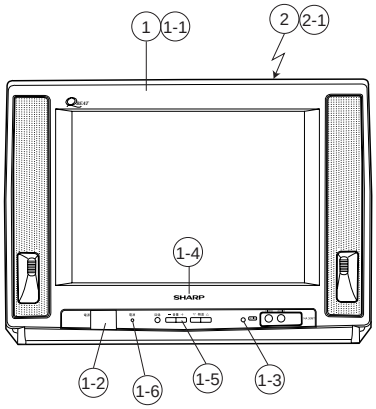
PACKING PARTS
(NOT REPLACEMENT ITEM)

	SPAKC6558PEZZ	-	Packing Case (21A-70ST)	-
	SPAKC6560PEZZ	-	Packing Case (14A-30MT)	-
	SPAKP0056PEZZ	-	Wrapping Sheet (14A-30MT)	-
	SPAKP0119PEZZ	-	Wrapping Sheet (21A-70ST)	-
	SPAKX2651PEZZ	-	Buffer Material (21A-70ST)	-
	SPAKX2653PEZZ	-	Buffer Material (14A-30MT)	-

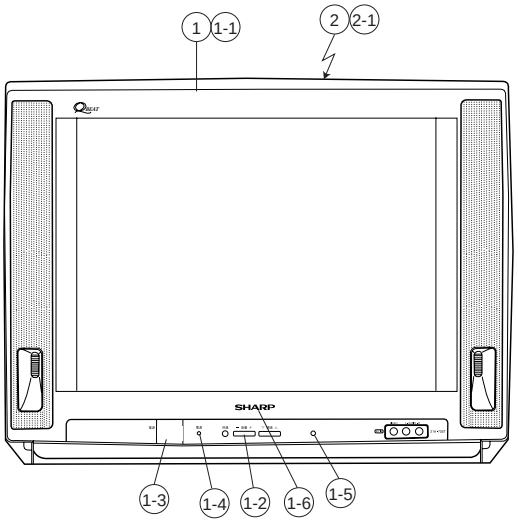
CABINET PARTS

Ref. No.	Part No.	★	Description	Code
			14A-30MT	
1	CCABA2522WEV0	R	Front Cabinet Ass'y	BC
1-1	*Not Available*	-	Front Cabinet	-
1-2	JBTN-0268PESC	R	Power Button	AC
1-3	GCOVA0080PESA	R	Cover for R/C	AD
1-4	HBDGB0019PESA	R	Badge "SHARP"	AD
1-5	JBTN-0264PESC	R	Control Button	AE
1-6	GCOVA0079PESA	R	Cover for LED	AC
2	CCABB2399WEV0	R	Rear Cabinet Ass'y	AX
2-1	*Not Available*	-	Rear Cabinet	-
			21A-70ST	
1	CCABA2516WEV0	R	Front Cabinet Ass'y	BG
1-1	*Not Available*	-	Front Cabinet	-
1-2	JBTN-0264PESC	R	Control Button	AE
1-3	JBTN-0265PESC	R	Power Button	AE
1-4	GCOVA0079PESA	R	Cover for LED	AC
1-5	GCOVA0080PESA	R	Cover for R/C	AD
1-6	HBDGB0015PESA	R	Badge "SHARP"	AE
2	CCABB2401WEV0	R	Rear Cabinet Ass'y	AZ
2-1	*Not Available*	-	Rear Cabinet	-

CABINET PARTS LOCATION

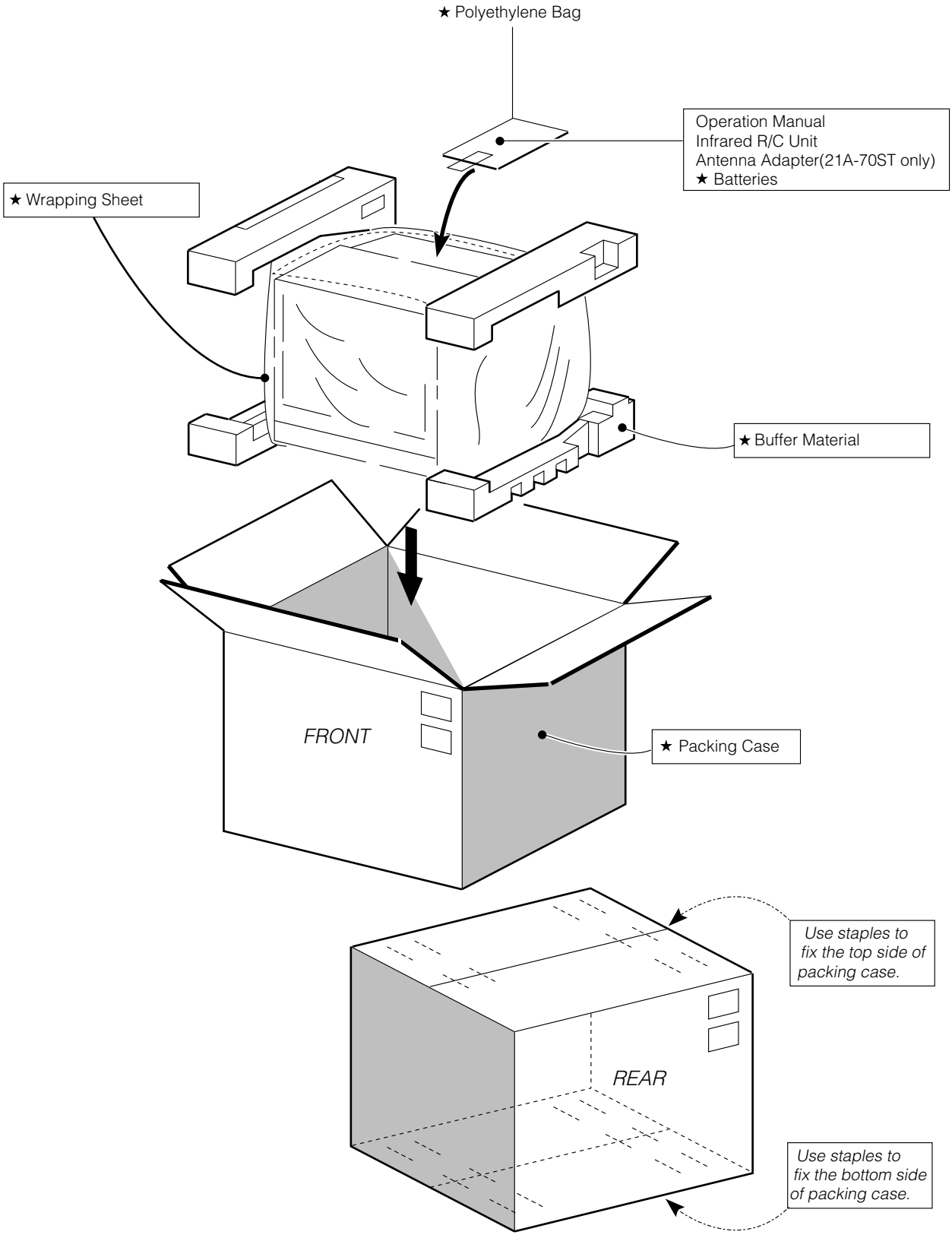


14A-30MT



21A-70ST

PACKING OF THE SET



★ MARK : Not Replacement Items.

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